COUNTY ROADWAY SAFETY PLAN

2018

Brown County

County Roadway Safety Plan

Prepared by:

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SRF No. 11406

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Introduction

Safety should be a priority for all agencies and Brown County is serving as a leader among Wisconsin counties in developing a County Road Safety Plan (CRSP). Brown County understands the value in making roads safer for the public and reducing fatalities and serious injury crashes on county roadways.

The goal of this safety plan is to reduce fatal and serious injury crashes on county roads by providing Brown County staff with a list of prioritized locations that have safety issues and guidance on specific safety strategies to implement.

This report documents the process used to collect and analyze data on Brown County's roadways and identifies safety concerns and location specific low-cost high-impact suggested improvements that the county can implement. This plan focuses on engineering related roadway concerns and how to improve the infrastructure. It does not specifically address other emphasis areas that are driver behavior focused such as drinking and driving, speeding, distracted driving, etc.

Brown County – Utilization of Plan

Brown County intends to utilize this report as a starting point for specific safety improvements on the County Highway system. Improvements that can be incorporated into larger resurfacing or reconstruction projects as part of the County's Capital Improvement Plan (CIP) will be built into the project. In addition, the County has budgeted $50,000 per year in General Transportation Aid funded projects for roadways that are not scheduled for improvement in the CIP. The Safety Plan will also be utilized for future Highway Safety Improvement Program applications to assist the County in securing Federal funding for continued improvements on the County Highway system.

The next step for Brown County is to identify and prioritize the suggested improvements from this report into a more specific Brown County Highway Safety Improvement Capital Plan that will supplement our overall 6-year CIP, outlining the improvements that will be added to the existing capital projects and additional GTA funded safety projects.

Brown County Focus on Safety – Existing Efforts

Prior to the development of this safety plan, Brown County had various safety related strategies installed and policies in place within the county:

- Installation of many roundabouts across Brown county.

Figure 1. Example Roundabout in Brown County

- Use of the transverse rumble strips (also known as stop control rumble strips) at select intersections based on the report by Brown County Public Works dated July 23, 2018 (See Appendix A). And image of this type of safety treatment is shown in Figure 2 - Transverse Rumble Strips at CTH T and CTH K. Using the county criteria from this report and the data collected for all of the county roads in Brown County, a list of priority locations to consider transverse rumbles strips was developed. This list can be found in Appendix B: List of Priority Locations for Transverse Rumble Strips
- Brown County has installed edgeline and centerline rumble strips on a few segments of roadway in the county. An image of these types of rumbles is shown in Figure 3.

Figure 2. Transverse Rumble Strips at CTH T and CTH K

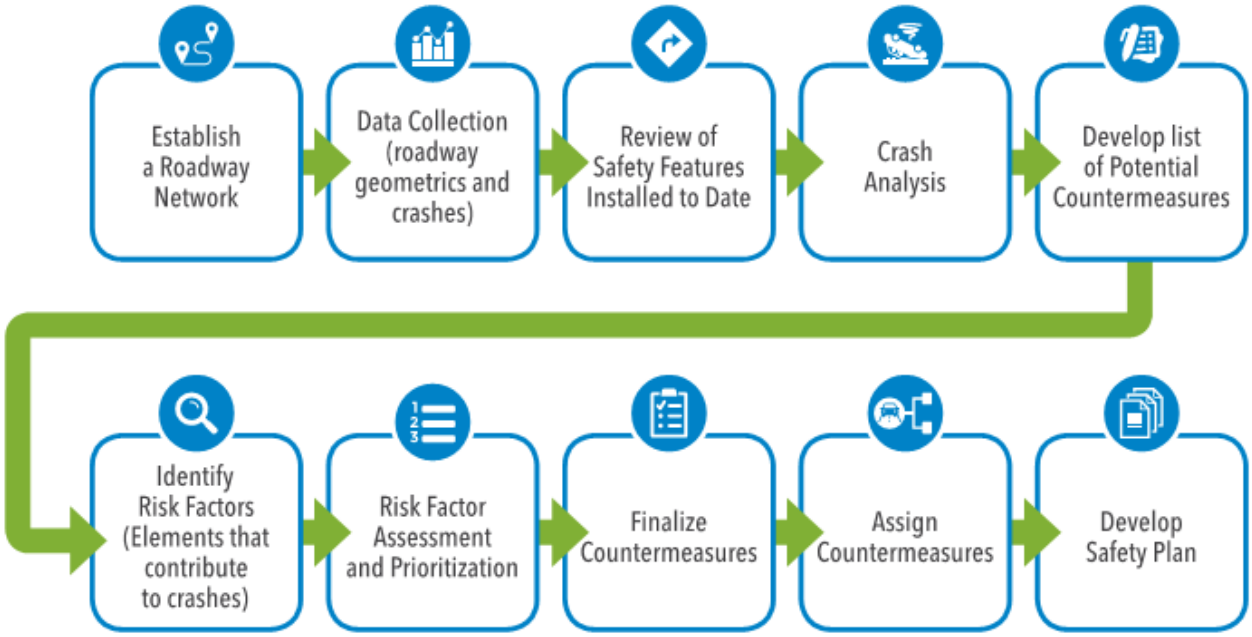
Figure 3. Edgeline and Centerline Rumbles on CTH R

Project Approach/Process

The county road safety plan approach looks at safety concerns proactively by seeking out locations that are considered to be at risk not only based on historical crash data, but by roadway characteristics that have been proven to make roads more dangerous and addressing the concerns before a crash occurs. A systemic approach is used to efficiently identify risk and assign safety strategies to all roadways and intersections across the county.

The Federal Highway Administration describes systemic analysis as "using crash and roadway data in combination to identify high-risk roadway features that correlate with particular crash types. Agencies have traditionally relied on crash history data to identify "hot spots," or sites with high crash frequency. However, severe crashes are widely dispersed over road networks, and their location and frequency fluctuate over time. Systemic analysis identifies locations that are at risk for severe crashes, even if there is not a high crash frequency. Practitioners can then apply low-cost countermeasures to those locations. The benefit is wider, but more targeted, safety investment."

Figure 4. Brown County – County Roadway Safety Plan Approach



Data Collection

Establishing a Roadway Network

SRF worked with Brown County staff to gather base roadway network data in GIS. This was used to identify the intersections, segments, and curves included in the analysis, which covers a total of 363 miles of County Trunk Highways.

Table 1. Roadway Network Analyzed

	Number Analyzed		
Roadway Network	**Rural**	**Urban**	**Total**
Segments	79	87	166
Curves	115	128	243
Intersections	83	103	186

A GIS database was developed as part of this project to track all of the roadway feature and crash data for each roadway. This GIS database was provided to Brown County to use as a base to build on, to track other county roadway characteristics and data after the CRSP project is complete. Maps documenting the roadway network analyzed for segments, curves and intersections are included in Figures 5-7.

Figure 5. Segments Analyzed

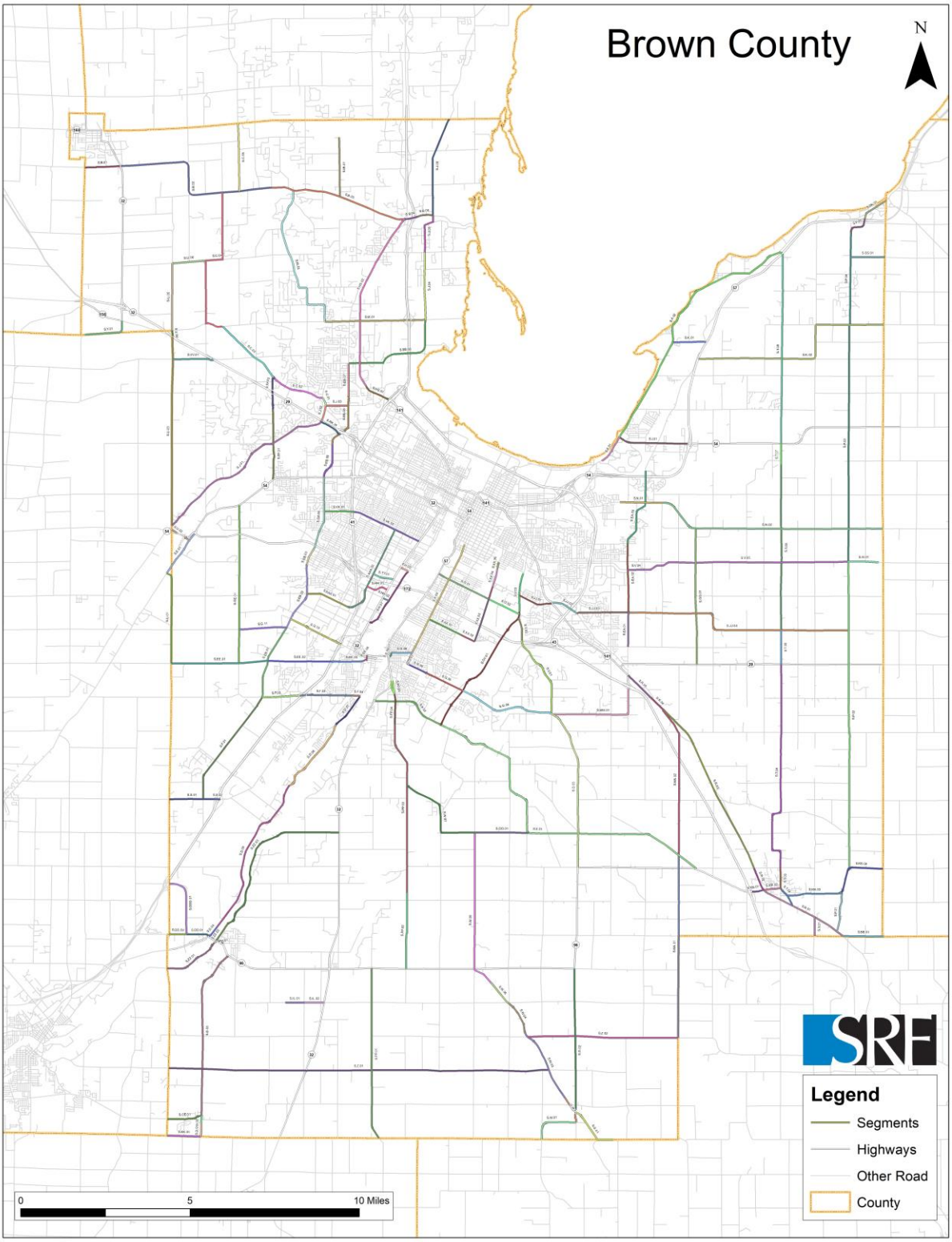


Figure 6. Curves Analyzed

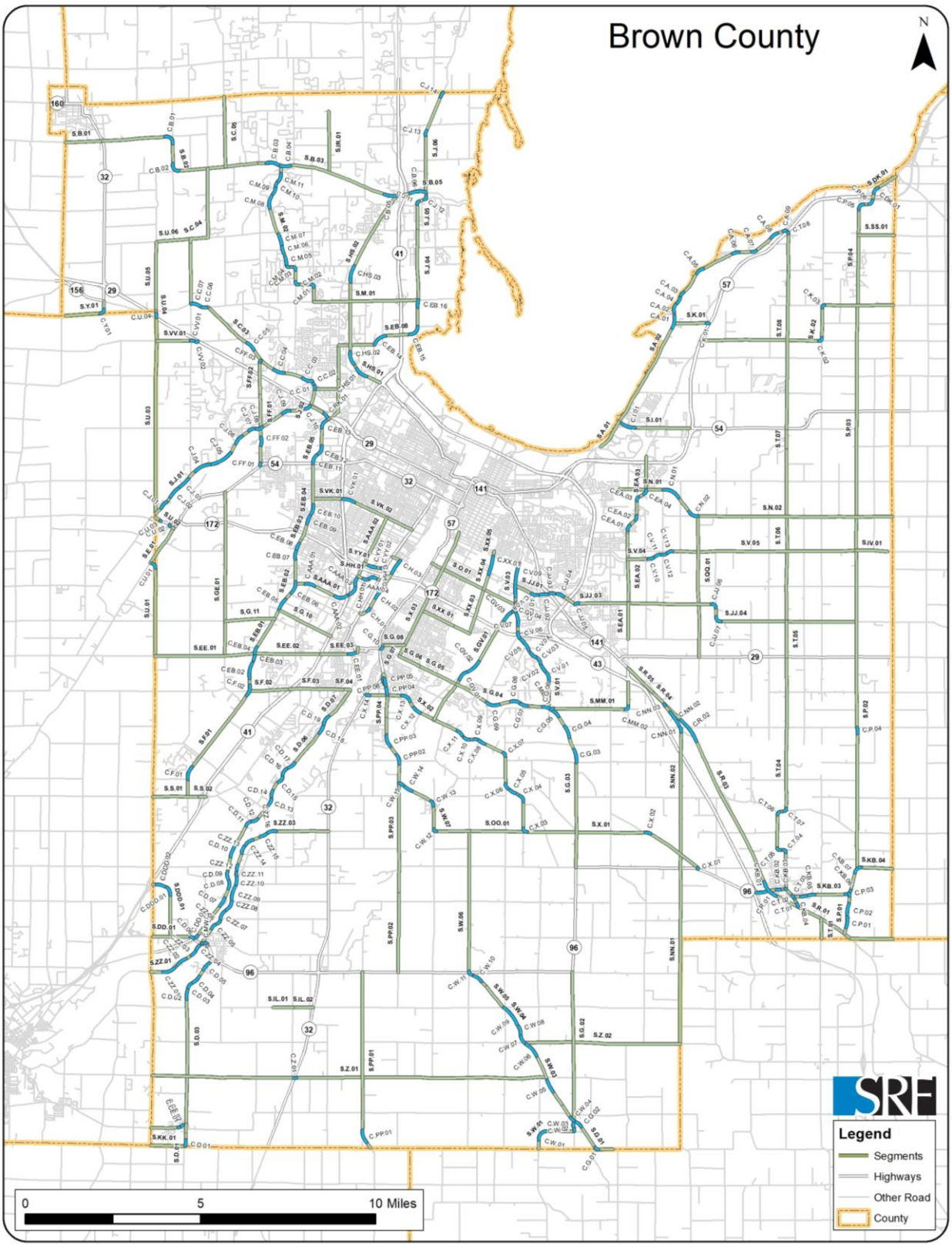
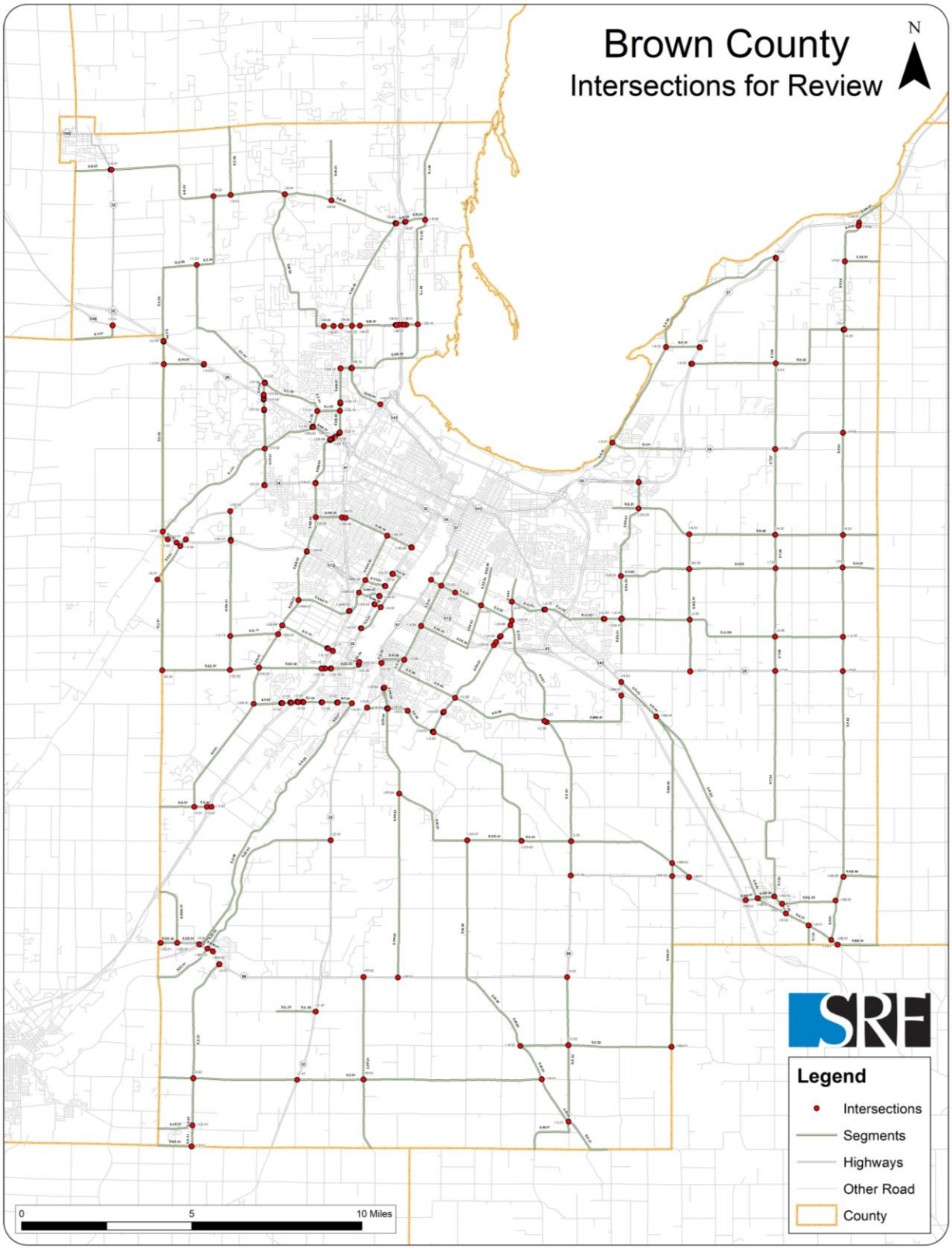


Figure 7. Intersections Analyzed



Roadway Feature Data Collected

Understanding the roadway characteristics helps in identifying locations that are high priority. Roadway feature data and traffic volumes were collected and documented in GIS for all roadway segments, intersections, and curves. This data was collected through a number of resources starting with data that Brown County staff provided as well as through the Wisconsin Information System for Local Roads (WISLR) database and aerial and street level photography. Table 2 provides a list of all of the roadway feature data collected for each segment, curve and intersection. A full list of the segments, curves and intersections that were analyzed as part of this project are included in Appendix C – Full list of Segments, Curves and Intersections Included in the Project Analysis.

Table 2. Roadway Feature Data Collected

Segments
Facility type
Median type and width
Lane width
Shoulder width and material
Rumble strips
Edge and center line width
Shoulder width
Curb and gutter
Edge risk
Speed limit
Access density
Curve density
ADT
Severe crash rate
Pavement age

Curves
Radius
Curve length
Existing curve signing
Intersection presence
Visual trap presence
Curve isolation

Intersections
Intersection configuration
Intersection design type
Traffic control
Lighting
Major approach speed
Facility type
Speed limits
Approach leg ADTs
Near a curve
Adjacent trip generator
Railroad crossing presence
Approach legs with previous stop greater than five miles
Severe crash data

Crash Analysis

A crash data set consisting of five years (2013-2017) of crash records for Brown County was obtained from the Wisconsin Department of Transportation. This data set included 18,859 crashes, of which 1,449 crashes occurred on the County Trunk Highway system.

Crash Overview

Detailed analysis of the data is important to identifying the root cause issues of fatal (K) and severe injury (A) crashes. The crash data collected was mapped to determine where they occurred on the county highway system. Figure 8 indicates the location of the severe K + A crashes that have occurred on the county highway system between 2013-2017, with the addition of two fatalities that occurred in 2018. A crash analysis was also conducted on these crashes to identify the factors that contributed to each crash. The crash tree diagram illustrated in Figure 9, breaks down the crashes by roadway characteristics, for all crashes that occurred on the Brown County Trunk Highway system from 2013-2017. Some of the highlights include:

- 95% of the severe crashes occurred on the rural County Trunk Highway system
- 84% of the severe rural intersection crashes involved a right-angle crash
- 90% of the severe rural non-intersection crashes were lane departure crashes with the majority (78%) being run off the road crashes
- 43% of the rural severe non-intersection crashes occurred on a curve, while curves account for less than 7% of the rural roadways

Figure 8. Severe Crashes on Brown County Roadways (2013-2017)

(Map includes all K+A crashes from 2013-2017 plus two K crashes that occurred in 2018)

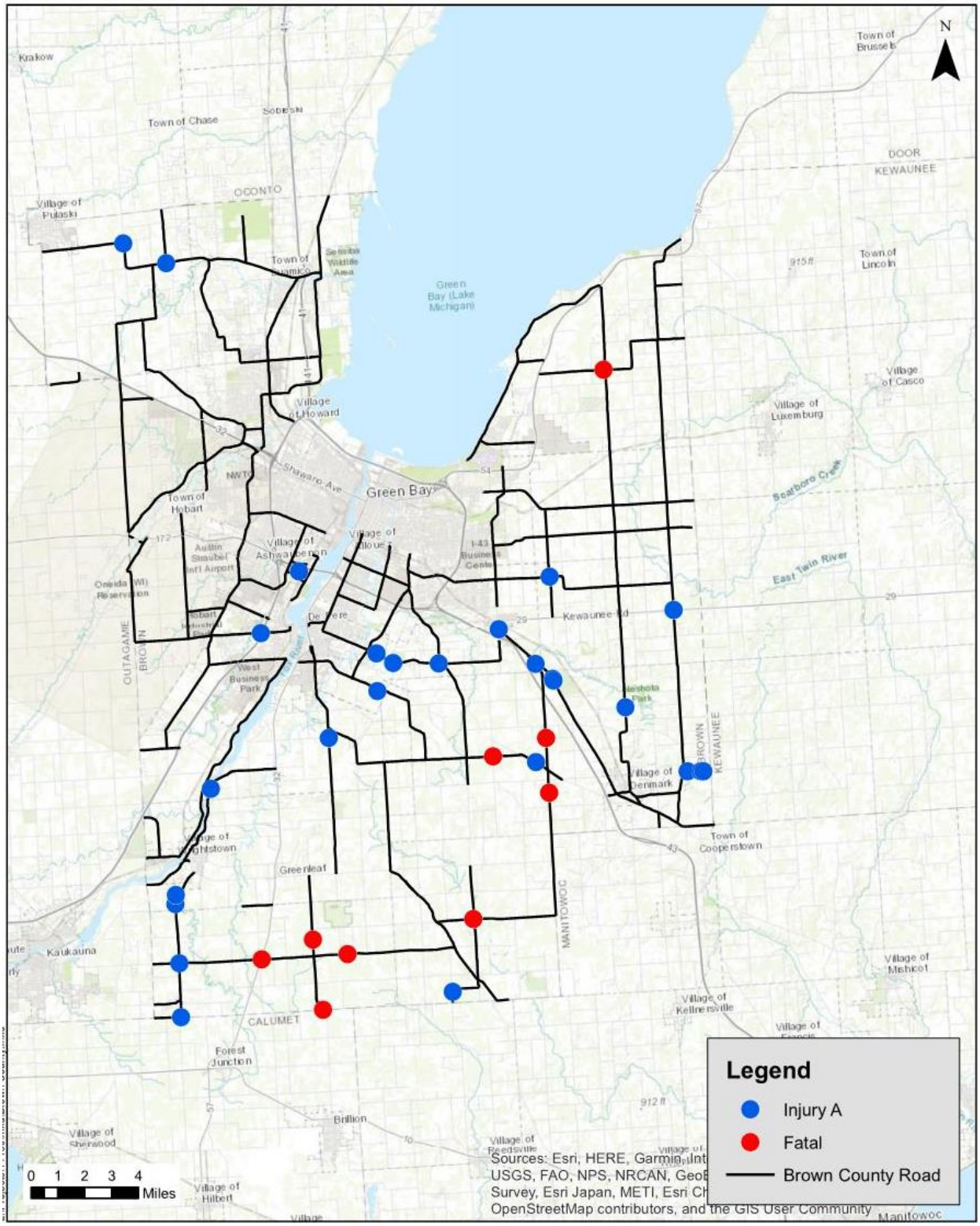
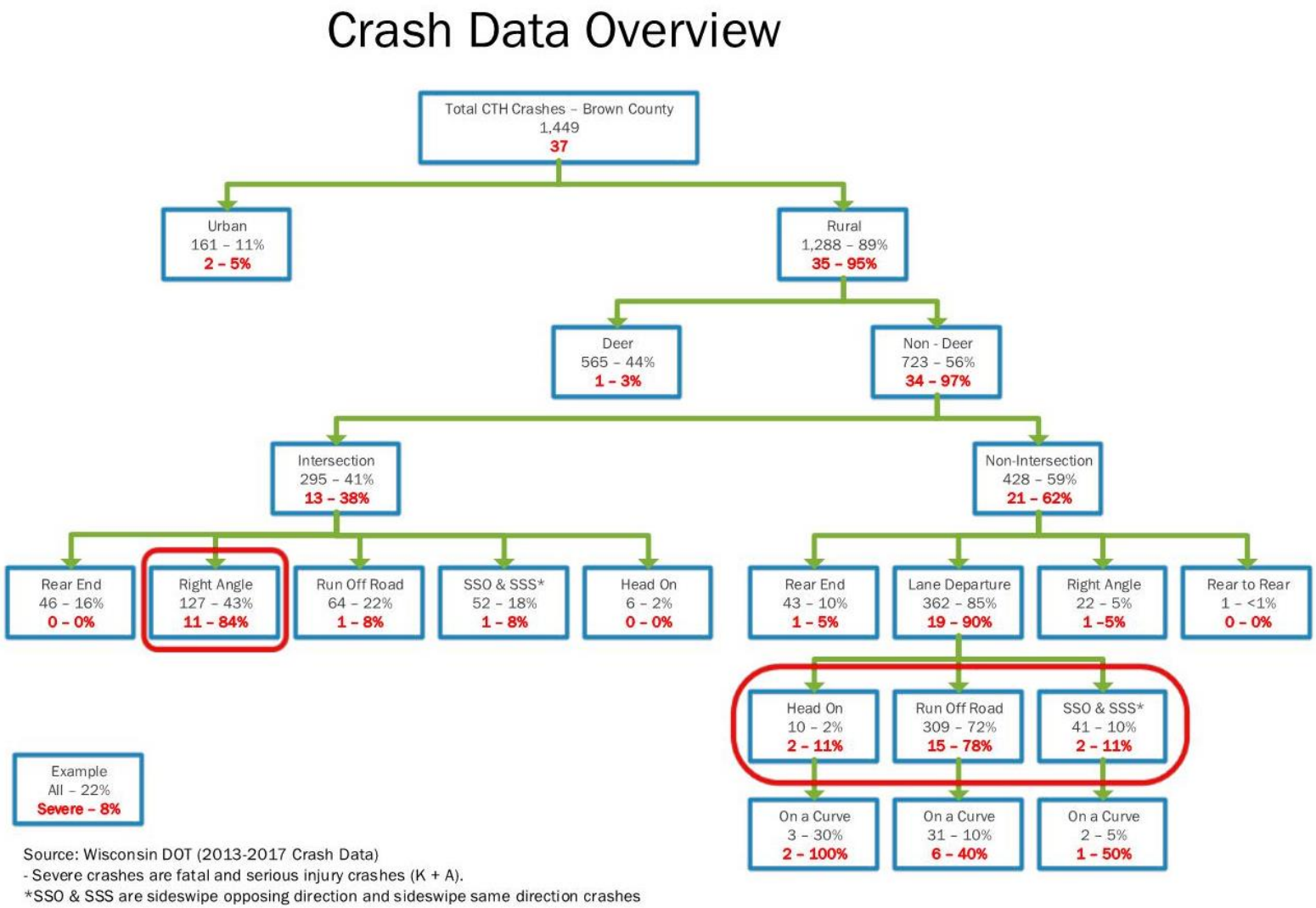


Figure 9. Brown County Crash Data Overview (2013-2017)



Critical Emphasis Areas for Brown County

Once the crash data was disaggregated, critical emphasis areas (CEAs) were identified. Critical emphasis areas are groups or types of crashes that represent the most opportunity for mitigating severe crashes. While the American Association of State Highway and Transportation Officials (AASHTO) and Federal Highway Administration (FHWA) have developed 22 emphasis areas grouped into six categories, this plan focuses on roadway infrastructure improvements. Therefore, only the emphasis areas that relate to roadway infrastructure were considered. Table 3 displays infrastructure related emphasis areas along with the number of severe crashes and percentage of total severe crashes. Lane departure and intersection crashes have been identified as critical emphasis areas for Brown County.

Table 3. Highway Critical Emphasis Areas

Emphasis Area	Number of Severe Crashes	% of Total Severe Crashes
Train-vehicle collisions	0	0%
Lane departure crashes	19	56%
Intersection crashes	13	38%
Work zone crashes	0	0%

* 2013-2017 Brown County roadway crash data

Roadway Network Analysis

In order to analyze the roadway network to determine which locations contain roadway features that are considered to be "at-risk", data for a much larger geographical area (used to increase statistical reliability) must be reviewed and compared to Brown County's roadway data to identify an initial set of risk factors. A risk factor is a roadway feature that is present at numerous locations that have experienced a severe crash.

Using a large data set, we can compare roadway features to severe crashes to identify locations that are at risk. Since a database with roadway feature and severe crash data is not available for the counties directly surrounding Brown County, data was used from counties in North Dakota and Minnesota similar to Brown County, since the roadway and crash data has been collected for all county roads in these states. This data was used to compare to Brown County data and identify the risk factors to use for location prioritization. Analysis of this larger geographic area will include reviewing locations with severe crashes and identifying roadway and traffic characteristics common at these locations.

Risk Factors

Using the risk factors identified below, all roadway segments, intersections, and curves within Brown County were reviewed to determine which locations have the identified risk factors present. Each location was assessed using a "check" ranking system, assigning a check for each risk factor that is present. The more checks, the more at-risk the location is.

The figures in this section show the percent of total crashes (blue bars) and the percent of severe crashes (red bars) that occurred on rural Brown County roadways within the risk factor range shown on the x-axis. The green line indicates the percent of the overall length that falls within the risk factor range. The red boxes indicate the ranges where severe crashes are disproportionately high when compared to overall crashes and the length.

Segments

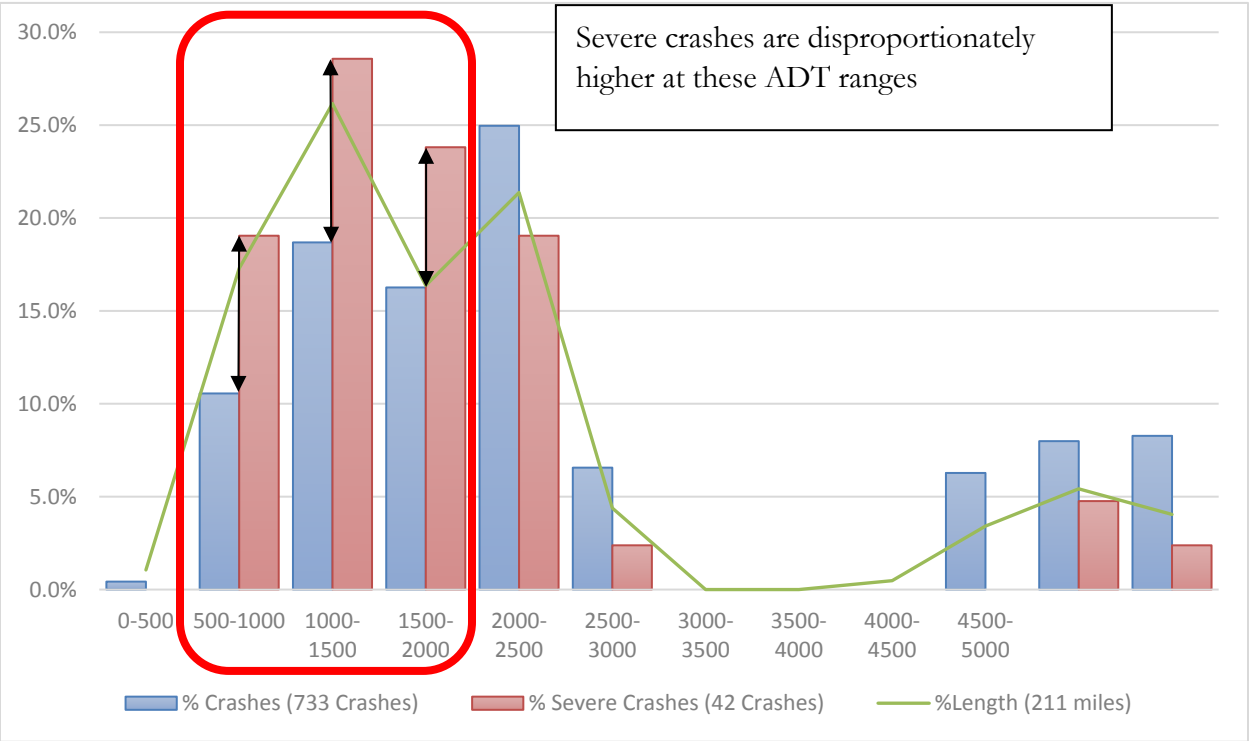
The risk factors used for segments and the critical values for each are summarized in Table 4. A detailed description of each is provided following the table.

Table 4. Summary of Segment Risk Factors

Risk Factor	Value/Range
AADT Range	500 and 2,000
Access Density	15 access points or greater
Lane Departure Density	Greater than 0.4 crashes per year
Critical Radius Curve Density	Greater than 0.13 curves per mile
Edge Risk	Score of 2C, 2S, or 3
Shoulder Width	Less than 4 feet

AADT Range – Figure 710 illustrates that approximately 45% of the crashes occurred on rural highways with an AADT between 500 and 2,000. However, approximately 71% of the severe crashes occurred on these roadways. Roadways with an AADT between 500 and 2,000 received a check.

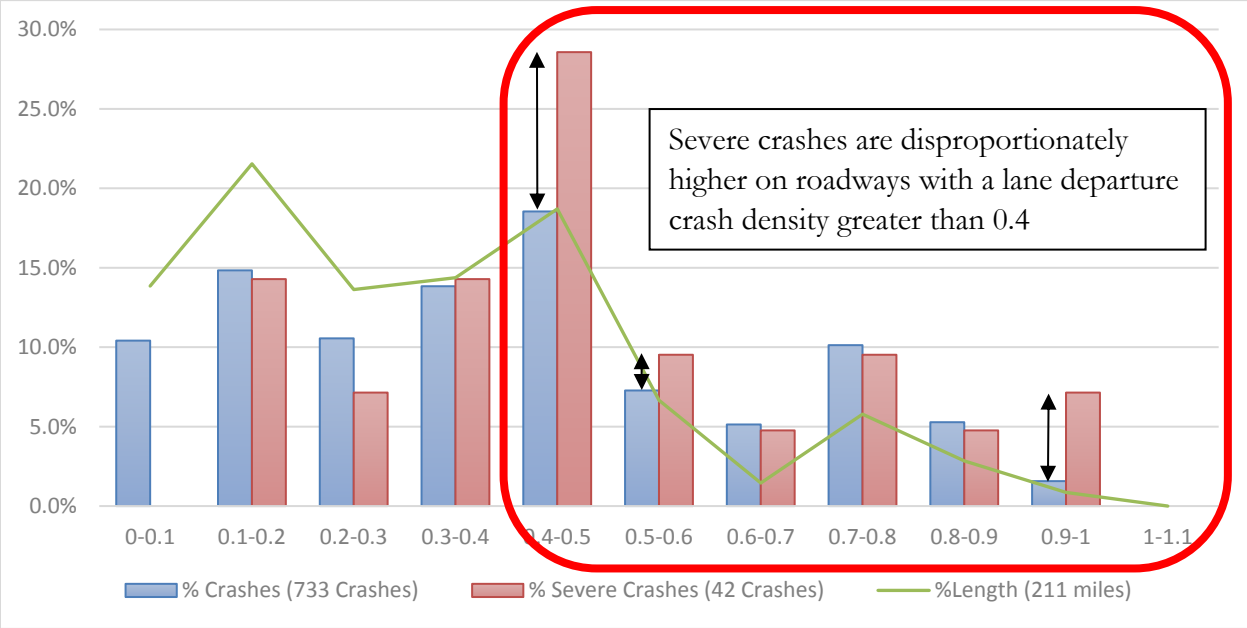
Figure 10. Brown County Crash Severity by AADT



Access Density – Increased access density on rural highways increases the likelihood that a vehicle involved in a run off the road crash will strike an access point. The Brown County rural trunk highway system averages approximately 15 access points per mile. Roadways with an access density of 15 access points or greater received a check.

Lane Departure Density – Figure 11 illustrates the relationship between lane departure crash density and crash severity. Roadways with a lane departure crash density greater than 0.4 crashes per year experienced a disproportionately higher number of severe crashes. Therefore, roadway segments with a lane departure density greater than 0.4 received a check.

Figure 11. Brown County Crash Severity by Lane Departure Crash Density

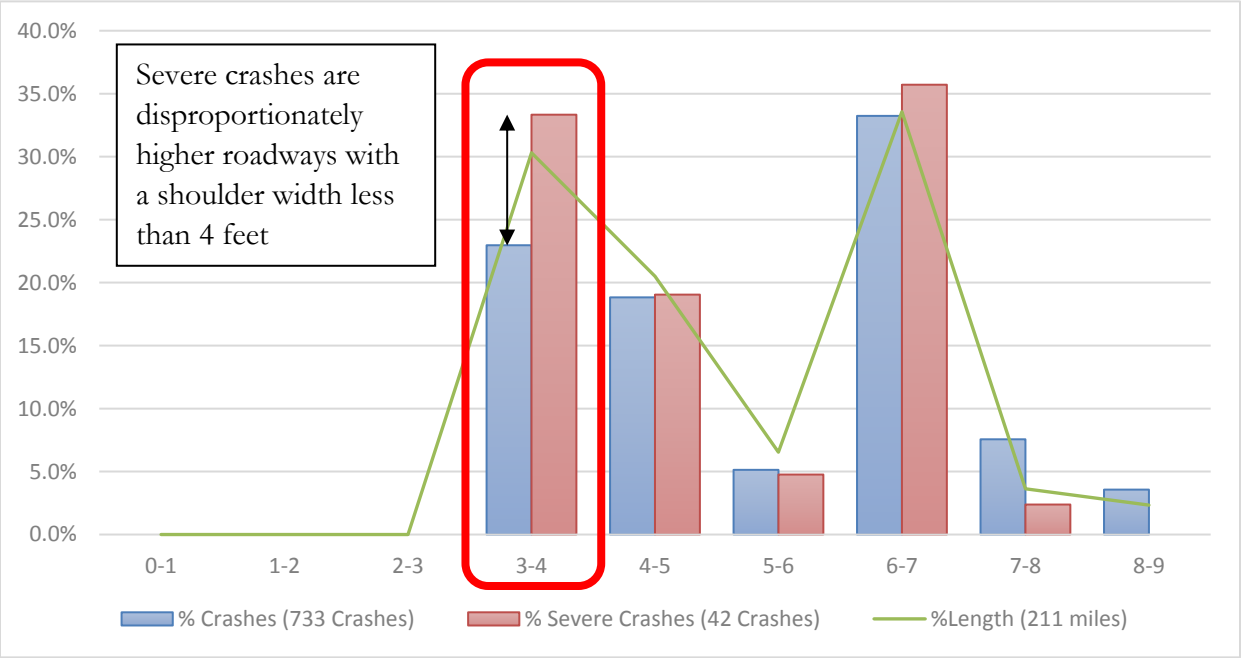


Critical Radius Curve Density – 43% of the rural non-intersection severe crashes in Brown County occurred on a curve. However, curves account for only 6.5% of the Brown County rural trunk highway system. Roadways with a critical radius curve density greater than 0.13 curves per mile experienced a disproportionately higher number of severe crashes. Therefore, roadway segments with a critical radius curve density higher than 0.13 received a check.

Edge Risk – A rating system was developed to categorize the level of risk associated with vehicles departing the travel lane. Roadways with a usable shoulder and an adequate clear zone received a rating of one. Roadways with a usable shoulder but an inadequate clear zone received a score of 2C. Roadways without a usable shoulder and an adequate clear zone received a score of 2S. Roadways without a usable shoulder or an adequate clear zone received a score of 3. Roadways that received a score of 2C, 2S, or 3 received a check.

Shoulder Width – Figure 12 illustrates the relationship between shoulder width and crash severity. Roadways with a shoulder width less than 4 feet experienced a disproportionately higher number of severe crashes. Therefore, roadway segments with a shoulder width less than 4 feet received a check.

Figure 12. Brown County Crash Severity by Shoulder Width



Curves

The risk factors used for curves and the critical values for each are summarized in Table 5. A detailed description of each is provided following the table.

Table 5. Summary of Curve Risk Factors

Risk Factor	Value/Range
Curve Radius	Between 250 and 1,250 feet
AADT	AADT greater than 750
Adjacent Intersection	On or near a curve
Visual Trap	Present
Total Crashes	Experienced a severe crash

Curve Radius – 71% of the severe crashes on curves occurred on curves with a radius between 250 and 1,250 feet. Therefore, curves with a radius within this range received a check.

AADT – 90% of the severe crashes on curves occurred on roadways with an AADT greater than 750. Therefore, curves with an AADT greater than 750 received a check.

Adjacent Intersection – Curves that are located on or near an intersection are at a higher risk. Therefore, curves that are on or near an intersection received a check.

Visual Trap – The presence of a visual trap on a curve increases the level of crash risk. A visual trap exists when a roadway, tree line, or utility poles leads a driver to believe that the roadway continues straight. An example is shown in Figure 13. Curves with a visual trap received a check.

Figure 13. Visual Trap on a Curve

Total Crashes – Roadways that experienced a severe crash during the analysis period (2013-2017) received a check.

Intersections

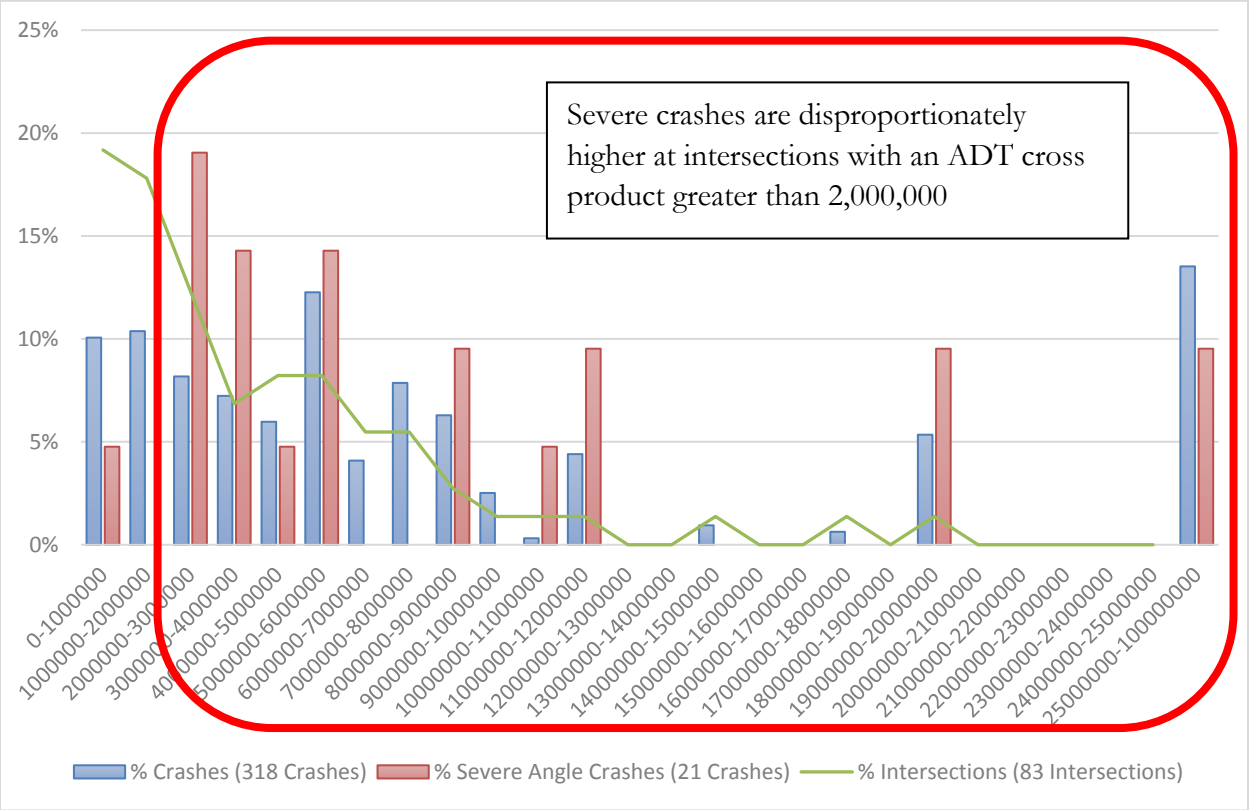
The risk factors used for intersections and the critical values for each are summarized in Table 6. A detailed description of each is provided following the table.

Table 6. Summary of Intersection Risk Factors

Risk Factor	Value/Range
ADT Cross Product	Greater than 2,000,000
Alignment Skew	15 degrees or more
Adjacent Curve	On or near a curve
Adjacent Trip Generator	Commercial development (trip generator) in one or more quadrant
Railroad Crossing	Rail crossing on the minor approach
Previous Stop	Approach that hasn't had to stop for five or more miles
Total Crashes	Experienced a severe crash

ADT Cross Product – The ADT cross product is the multiplication of the average major approach entering ADT and average minor approach entering ADT. Figure 14 illustrates that intersections in Brown County with a cross product greater than 2,000,000 experienced a disproportionately high number of severe crashes, relative to the number of intersections at that ADT volume. Therefore, these intersections received a check.

Figure 14. Brown County Crash Severity by ADT Cross Product



Alignment Skew – Intersections with a skewed approach are at a greater risk for severe crashes. Rural intersections with an approach that is skewed by 15 degrees or more received a check.

Adjacent Curve – Intersections that are on or near a curve are at a greater risk for severe crashes. Therefore, intersections that are on or near a curve received a check.

Adjacent Trip Generator – Intersections with a commercial development (trip generator) in one or more quadrant are at a greater risk for severe crashes. Therefore, intersections with a commercial generator in one or more quadrant received a check.

Railroad Crossing – Intersections with a railroad crossing on a minor approach are at greater risk because a driver must navigate the crossing while approaching the intersection. Therefore, intersections with a rail crossing on the minor approach received a check.

Previous Stop – Intersections with a minor stop controlled approach that hasn't had to stop for five or more miles are at a greater risk due to drivers losing attention when traveling longer distances. Therefore, these intersections received a check.

Total Crashes – Intersections that experienced a severe crash during the analysis period (2013-2017) received a check.

Prioritization

Once all locations were assessed for risk factors, the segments, curves and intersections were sorted and prioritized by check ranking. Locations with more checks are considered a higher priority. Emphasis was given to rural areas with higher speed limits, since this is where the majority of severe crashes occur. A few exceptions were made and removed from the prioritization:

- Segments and curves with a speed limit less than 45 MPH were removed since these locations tend to be more urban, have curb and gutter in place and are less likely to result in severe crashes due to the lower speed.
- Curves with a radius greater than 3,000 feet were removed since these curves are so large they do not require drivers to reduce their speed and vehicles running off the road are less likely.
- Intersections:
    - Intersections with a roundabout in place were removed since building a roundabout is a safety improvement and the additional recommended intersection related safety strategies would not apply.
    - Intersections with speed limits of less than 45 MPH on both approaches were removed since they are less likely to result in severe crashes due to the lower speed.

Maps of the high priority locations are shown in Figures 15-17. A full list of the prioritized locations is included in Appendix D – List of Prioritized Segments, Curves and Intersections.

Figure 15. High Priority Segments

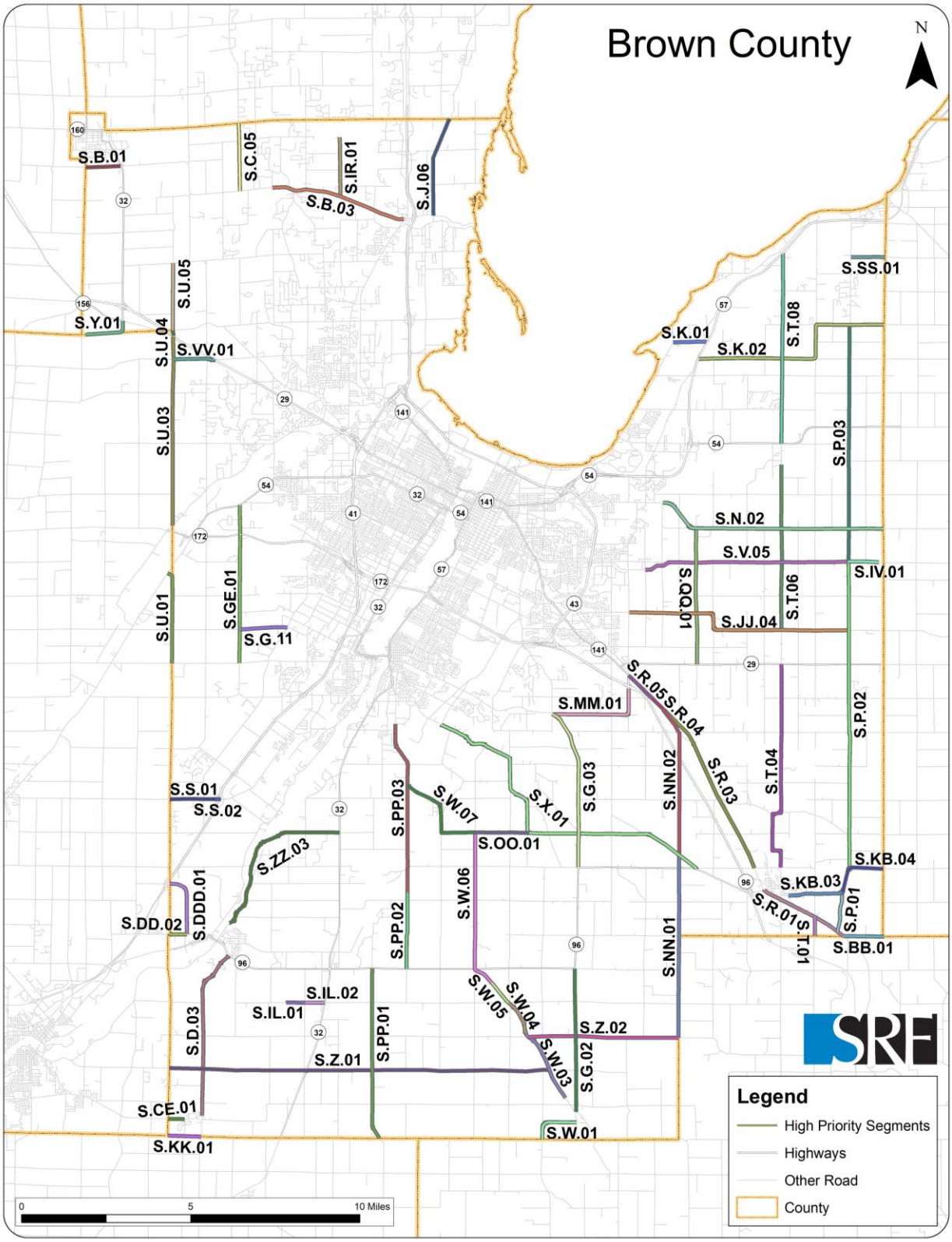


Figure 16. High Priority Curves

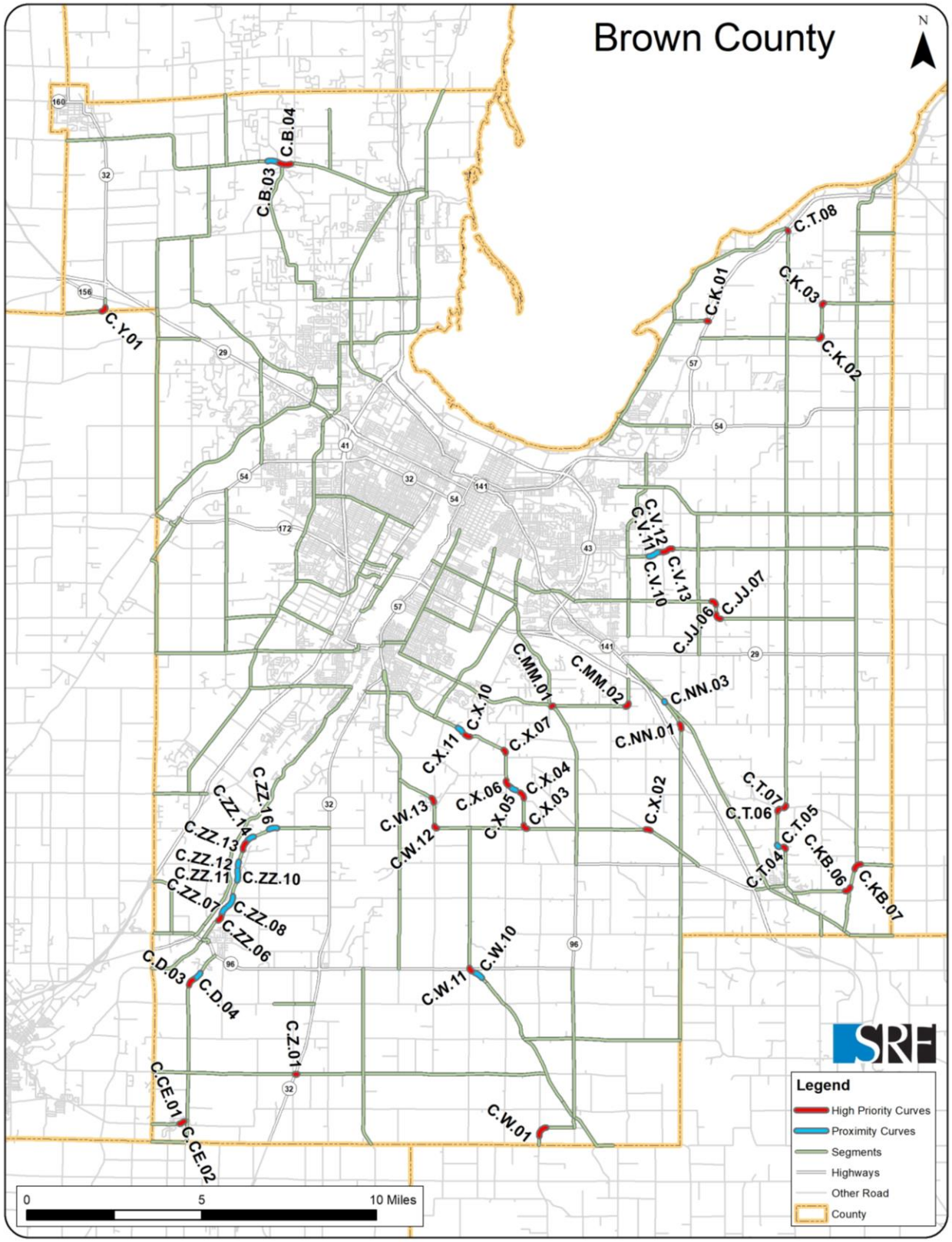
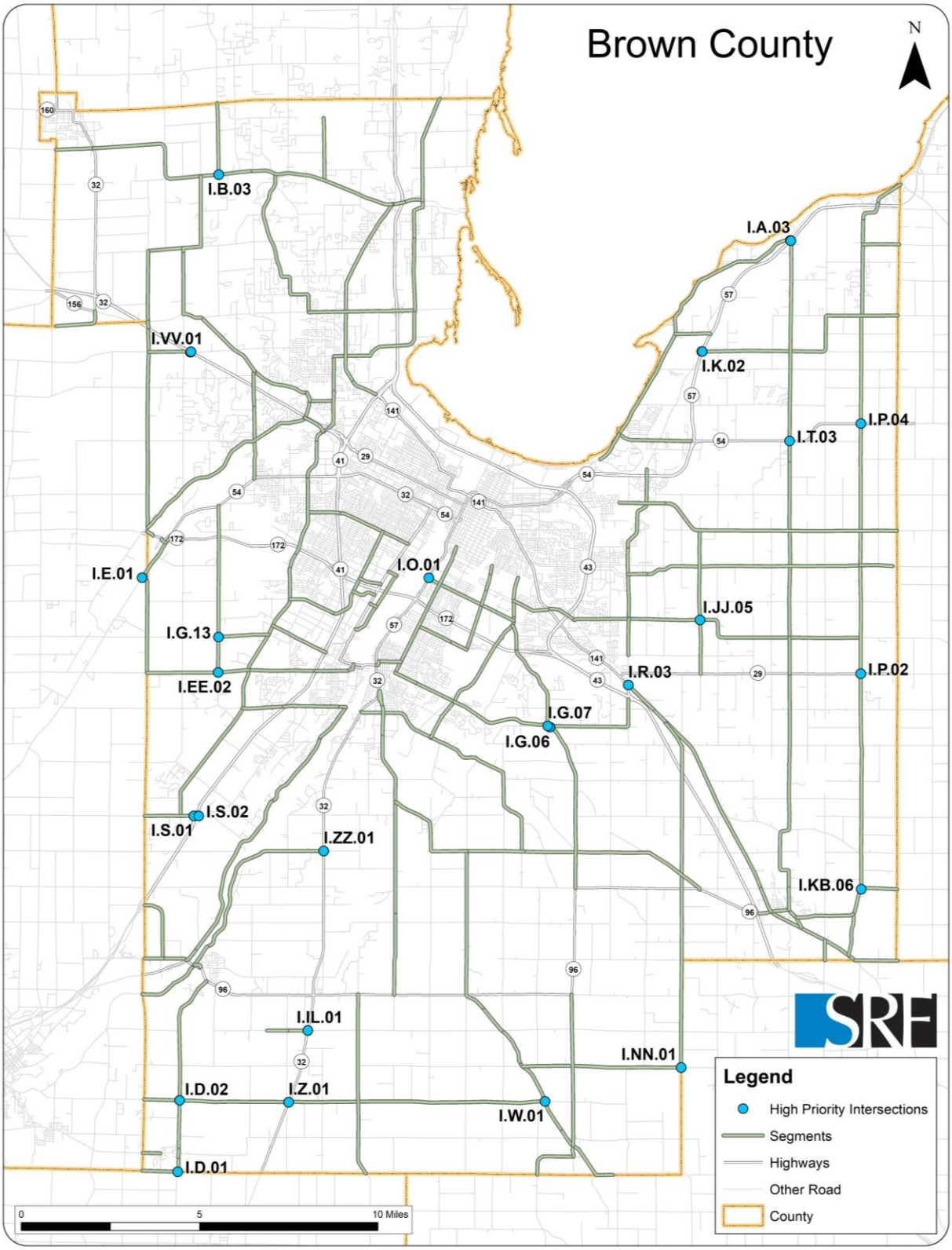


Figure 17. High Priority Intersections



Safety Strategies

Nationally proven counter measures were selected for Brown County using the critical emphasis areas and research findings documented in the National Cooperative Highway Research Program (NCHRP) 500 series reports and FHWA Crash Modification Clearinghouse. These widely-recognized resources contain the most comprehensive and credible list of safety strategies, that were developed to assist local agencies in determining safety strategies to consider implementing. The reports include a brief introduction of each strategy, an estimated cost and research findings on its effectiveness (proven, tried, and experimental). Attention was given to low-cost high-impact strategies that can be applied systematically.

The low-cost safety strategies that have been selected for Brown County are shown in Figures 18-20.

Figure 18. Segment Safety Strategies

Clear Zone Maintenance[1]

Enhance Edgeline (4-in)[2]

Enhance Edgeline (8-in)[2]

Shoulder Rumble Strip[3] and Centerline Rumble[5]

2-ft Shoulder Paving[4]

Safety Edge[6]

[1]Source:https://nativeengineering.files.wordpress.com/2016/12/3.jpg?w=300&h=204
[2]Source: Low-Cost Treatments for Horizontal Curve Safety (FHWA, FHWA-SA-07-002)
[3]Source: Edgeline and Centerline Rumbles on CTH R in Brown County
[4]Source: https://mntransportationresearch.fileswordpress.com/2014/06/dsc_8665nv.jpg?w=672&h=372&crop=1
[5]Source: Mitigation Strategies for Design Exceptions (FHWA, FHWA-SA-07-011)
[6]Source: FHWA Public Roads (Sept/Oct 2014; Vol. 78 No. 2)

Figure 19. Curve Safety Strategies

Install/Upgrade Chevrons[1]

2-Ft Shoulder Paving[2]

Shoulder Rumbles - Curve [2]

Install Advanced Curve Warning/Speed Advisory Sign[4]

[1] Source: Low Cost Traffic Engineering Improvements: A Primer (FHWA, FHWA-OP-03-078)
[2] Source: https://mntransportationresearch.fileswordpress.com/2014/06/dsc_8665nv.jpg?w=672&h=372&crop=1
[3] Source: Using CRFs To Improve Highway Safety (Dan Nabors, VHB) (FHWA)
[4] Source: Speed Concepts: Informational Guide (FHWA)

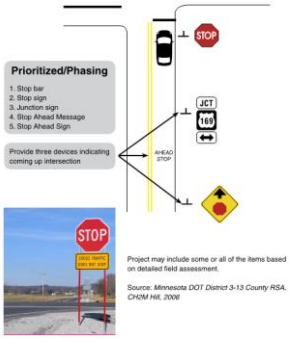
Figure 20. Intersection Safety Strategies

Roundabout[1]

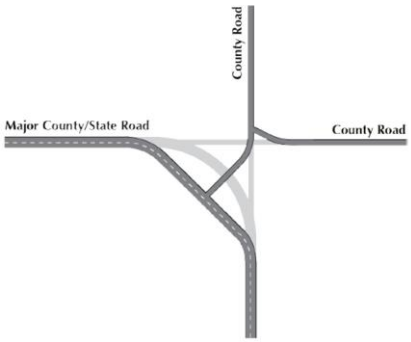
Install Transverse Rumble Strips[2]

Convert to All-Way Stop[3]

Install Street Lights[4]



Upgrade Signs & Markings[5]



Reconstruct to Single T[6]

[1] Source: Roundabout in Brown County
[2] Source: Transverse Rumble Strips at CTH T and CTH K in Brown County
[3] Source: http://www.ite.org/uiig/images/type/clip_image010.jpg
[4] Source: Mitigation Strategies for Design Exceptions (FHWA, FHWA-SA-07-011)
[5] Source: Minnesota CRSP
[6] Source: MnDOT 2015 Traffic Safety Fundamentals Handbook

Table 7 included the crash reduction factor and planning level cost estimate for each strategy. The crash reduction factors are based on review of the Crash Modification Factors (CMF) Clearinghouse and other published research. For intersections that need better visibility, additional strategies listed in Chapter 2-1-8 of the WisDOT Traffic Engineering, Operations & Safety Manual are suggested for consideration.

Table 7. Safety Strategies

Safety Strategy	Crash Reduction Factor*	Cost
Segments		
Clear Zone Maintenance	35% to 40%	$50,000 - $500,000 per mile
Enhance Edgeline	10% to 45% all rural severe crashes	$2,000 per mile
Shoulder Rumble Strip	20% run-off-road crashes	$5,850 per mile
2-Foot Shoulder Paving & Safety Edge	20% to 30% run-off-road crashes (with shoulder rumble)	$54,000 per mile
Centerline Rumble	40% head-on/sideswipe crashes	$3,600 per mile
Curves		
Upgrade/Install Chevrons	20% to 30%	$3,960 per curve
2-Foot Shoulder Paving	20% to 30% run-off-road crashes (with shoulder rumbles)	$54,000 per mile
Shoulder Rumble Strip	20% run-off-road crashes	$5,850 per mile
Advanced Curve Warning/ Speed Advisory Sign	20% to 30%	$1,440 per curve

Safety Strategy	Crash Reduction Factor*	Cost
Intersections		
Roundabout	20% to 50% all crashes 60% to 90% severe right angle crashes	$1,000,000 per intersection
Convert to All Way Stop	Crash reduction data not available – only used when intersection meets warrants	$1,000 per intersection
Streetlights	25% to 40% of nighttime crashes	$6,000 per light
Upgrade Signs and Markings	40% upgrade of all signs and pavement markings	$2,640 per approach
Reconstruct to a Single T	Not Available	$150,000 per intersection
Transverse Rumble Strips	39% of Severe Crashes	$2,500 per intersection (placed on two approaches)
Additional Safety Strategies for locations that need better visibility [1]	Varies	Varies

*Crash reduction factors based on review of CMF Clearinghouse and other published research
[1] See additional Safety Strategies in Chapter 2-1-8 of the WisDOT Traffic Engineering, Operations & Safety Manual

Project Decision Trees

Project decision trees were developed using the list of prioritized locations and county selected preferred safety strategies that are the "best fit" for a particular location based on the existing roadway features. ADT is the primary factor in the segment and intersection project decision trees. The primary factors in the curve project decision tree are curve radius, presence of existing chevrons, and the presence of a visual trap. Locations for installation of Transverse Rumbles Strips were identified through separate criteria documented by Brown County in a report included in Appendix A. The rural safety strategy decision trees are shown in Figures 15-17.

It is not recommended to place all safety enhancements at one particular location – it has been proven that the right safety strategy at the right location is the most effective way to enhance safety. Installing all safety strategies at one location can be distracting and actually reduce the overall effectiveness of the safety features implemented

Figure 21. Rural Segment - Safety Strategy Decision Tree

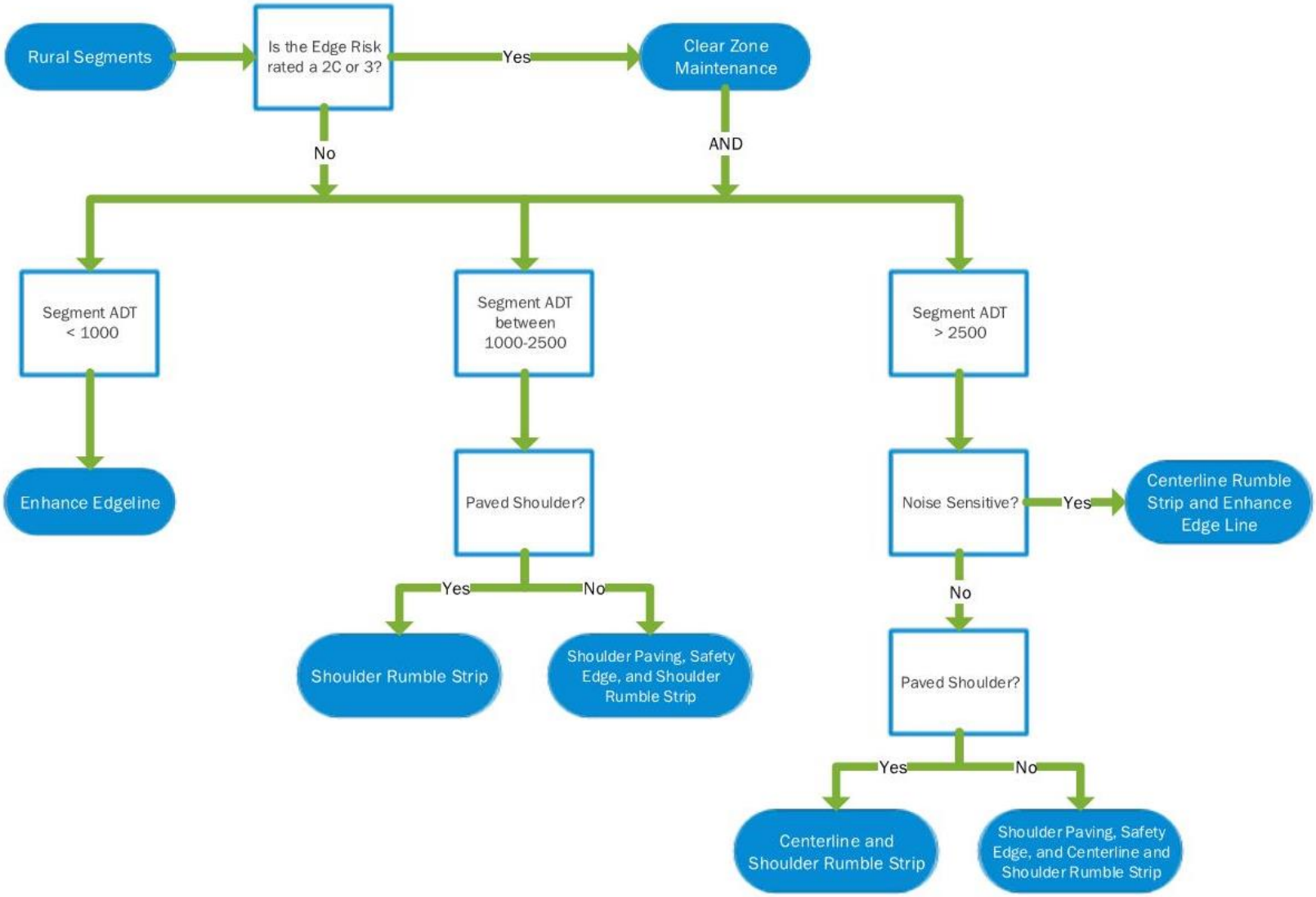


Figure 22. Rural Curve - Safety Strategy Decision Tree

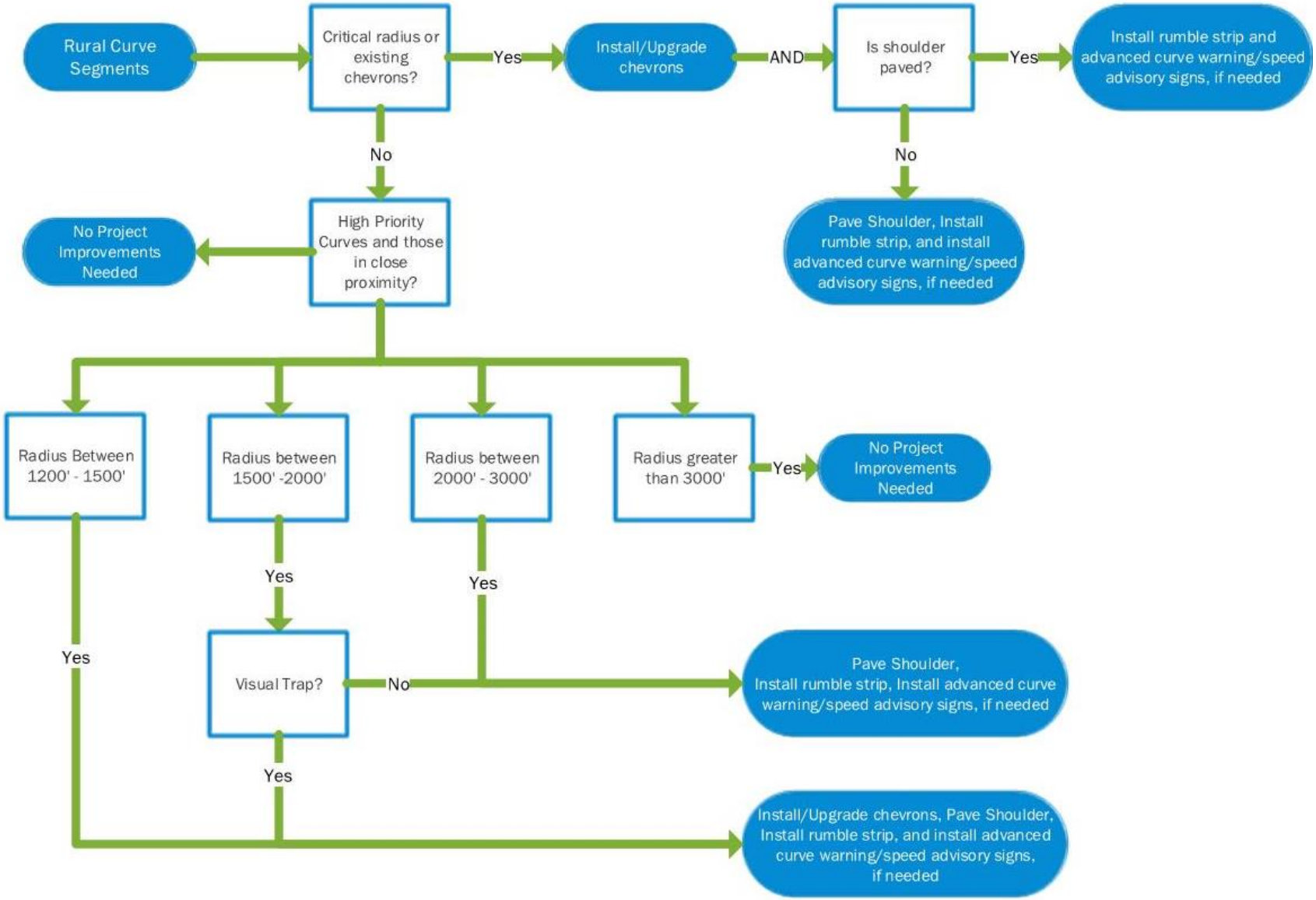
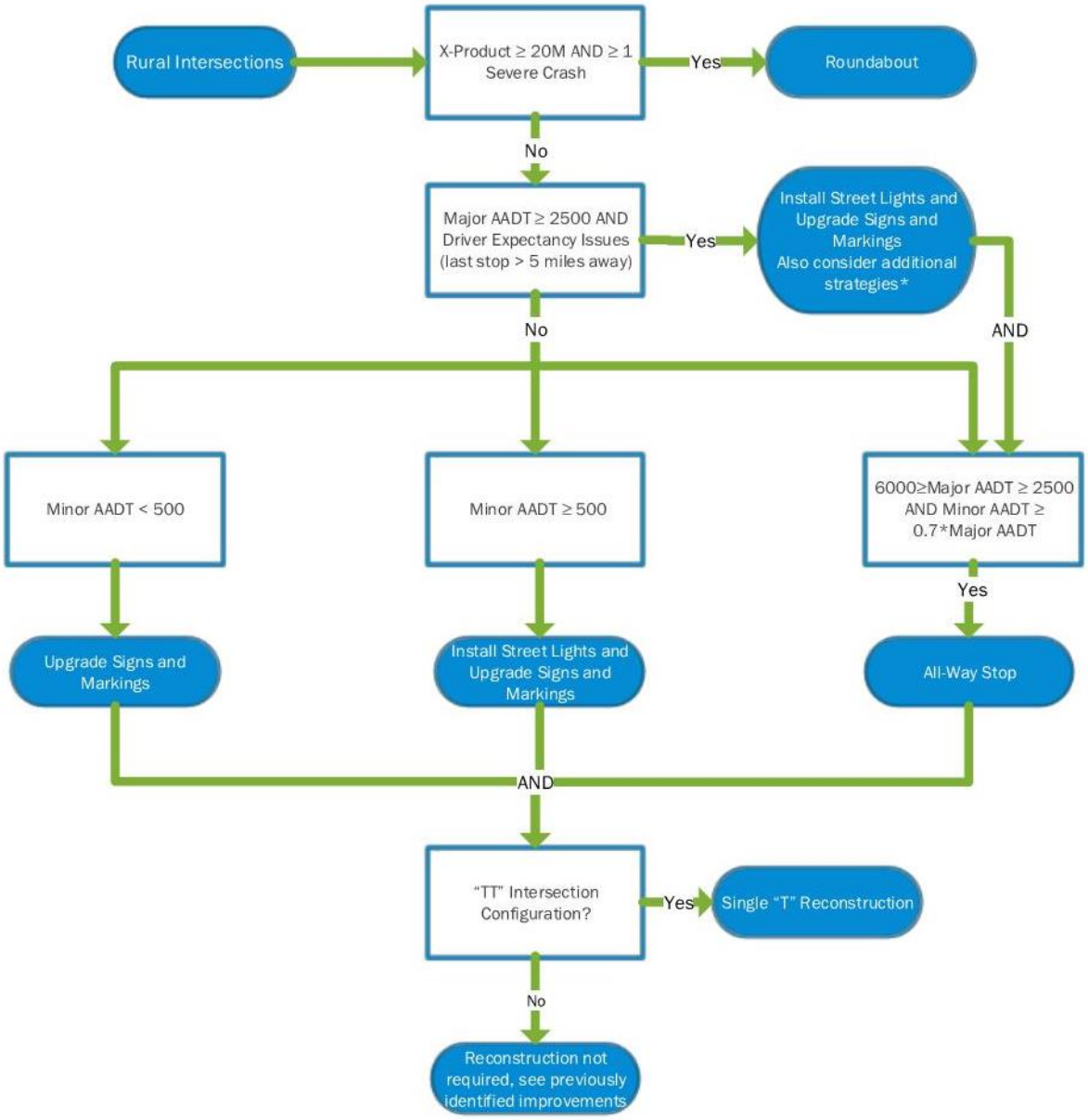


Figure 23. Rural Intersection - Safety Strategy Decision Tree



Note: Locations for installation of Transverse Rumble Strips were identified through separate criteria documented by Brown County in a report included in Appendix A.

*Additional strategies identified in Chapter 2-1-8 of the WisDOT Traffic Engineering, Operations & Safety Manual include:

- Clearing Vegetation
- Double-marking STOP and STOP AHEAD signs
- Flags on signs
- Rumble Strips
- Increasing sign sizes
- Flashing beacons
- Others

Recommended Projects

The lists of recommended safety projects for each high priority segment, curve and intersection is included in Appendix E – List of Suggested Safety Projects for Prioritized Segments, Curves and Intersections. A summary of the number of recommended projects is provided in Tables 8-10. The recommended projects were determined based on the data that was available for the analysis. Brown County staff know their roadway network the best and can make the final decision if the suggested strategy is the right fit. For example, if edgeline rumble strips are suggested in an area that has a home nearby, the county can make the decision to install enhanced edgelines instead.

Table 8. Summary of Recommended Segment Projects

Safety Strategy	# of Segments	Total Miles
Clear Zone Maintenance	33	128.9
Enhanced Edgeline	15	28.9
Shoulder Rumble Strips	21	105.1
Shoulder Paving and Safety Edge	8	40.7
Centerline Rumble Strips	2	6.6
Enhanced Edgeline (Noise Sensitive Corridors)	1	0.5

Table 9. Summary of Recommended Curve Projects

Safety Strategy	# of Curves	Total Miles
Upgrade/Install Chevrons	37	n/a
Shoulder Paving and Safety Edge	22	4.1
Install Rumble Strips	49	8.7
Install Advanced Curve Warning/Speed Advisory	49	n/a

Table 10. Summary of Recommended Intersection Projects

Safety Strategy	# of Intersections
Convert to Roundabout	1
Convert to All Way Stop	0
Install Street Lights	21
Upgrade Signs and Markings	23
Reconstruct to a Single "T"	0
Transverse Rumble Strips*	19
Additional Safety Strategies for locations that need better visibility [1]	5

* Number of locations that met two or more of the four criteria in Appendix A

[1] See additional Safety Strategies in Chapter 2-1-8 of the WisDOT Traffic Engineering, Operations & Safety Manual

Appendix A - Brown County Highway Intersection Safety & Stop Condition Rumble Strips Report

PUBLIC WORKS DEPARTMENT
Brown County

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PAUL A. FONTECCHIO, P.E.
DIRECTOR

TO: PD&T Committee

FROM: Paul Fontecchio, P.E.

DATE: July 23, 2018

RE: County Highway Intersection Safety & Stop Condition Rumble Strips

Over the past couple years, Brown County has seen a number of fatal crashes involving drivers failing to stop at stop signs and pulling out into oncoming traffic. Most of these crashes have occurred during daytime hours, on bright sunny days, and with no pattern as to where the crashes occurred – CTH EE & CTH U, CTH PP & Man-Cal Road, and CTH Z & CTH G to name a few. The one thing these crashes do have in common is that many of them involved distracted driving as the cause or a contributing factor to the crash.

The Centers for Disease Control and Prevention (CDC) discusses distracted driving:

> "Each day in the United States, approximately 9 people are killed and more than 1,000 injured in crashes that are reported to involve a distracted driver.
>
> Distracted driving is driving while doing another activity that takes your attention away from driving. Distracted driving can increase the chance of a motor vehicle crash."[1]

The CDC also breaks down the types of distraction:

> **"What are the types of distraction?**
>
> There are three main types of distraction:
>
> - Visual: taking your eyes off the road;
> - Manual: taking your hands off the wheel; and
> - Cognitive: taking your mind off of driving.
>
> **Distracted driving activities**
>
> Anything that takes your attention away from driving can be a distraction. Sending a text message, talking on a cell phone, using a navigation system, and eating while driving are a few examples of distracted driving. Any of these distractions can endanger the driver and others.
>
> Texting while driving is especially dangerous because it combines all three types of distraction. Sending or reading a text message takes your eyes off the road for about 5 seconds, long enough to cover a football field while driving at 55 mph."[1]

Crash statistics from the National Highway Traffic Safety Administration (NHTSA)[2] show how big the problem is:

US deaths
In 2015, 3,477 people were killed in crashes involving a distracted driver.

US injuries
In 2015, 391,000 people were injured in motor vehicle crashes involving a distracted driver.

	2010	2011	2012	2013	2014	2015	2016
Distracted Driving Deaths	3,092	3,331	3,328	3,154	3,179	3,477	3,157
All Motor Vehicle Deaths	32,999	32,479	33,782	32,894	32,744	35,092	34,439
Distracted Driving Injuries	416,000	387,000	421,000	424,000	431,000	391,000	N/A
All Motor Vehicle Injuries	2,239,000	2,217,000	2,362,000	2,313,000	2,338,000	2,443,000	N/A

Locally, Brown County has also seen a rise in distracted driving crashes, many of which have been fatal. On July 8, 2018 a westbound motorcyclist on CTH Z failed to stop at the intersection with CTH G, striking a southbound vehicle with both drivers being killed at the scene. The picture below was taken the next morning. The 'Stop Ahead' sign as well as the 'Stop' sign are clearly visible and installed correctly. Somehow the driver did not see these signs and come to a stop at this location – either a visual distraction (taking eyes off the road) or a cognitive distraction (mind not picking up on the signs alerting the driver of the stop condition).

On CTH Z looking west towards the intersection with CTH G.

The eastbound direction on CTH Z approaching CTH G has a much worse line of sight with the crest of the hill between the Stop Ahead sign and the Stop sign at the intersection.

On CTH Z looking east towards the intersection with CTH G.

Over the past decade or so highway departments have increased the use of shoulder and centerline rumble strips along state and county highways. The Wisconsin DOT states in the Facilities Development Manual (FDM) that, "WisDOT takes a systemic approach to rumble strip installation based on national evidence that rumble strips reduce crashes and increase safety on divided and undivided roadways."[3] The shoulder rumble strips, for example, have greatly reduced the number of crashes from vehicles running off the road or catching their tire on the pavement edge when they hit the gravel shoulder.

At the same time, there has been a substantial decrease in the use of stop condition (transverse) rumble strips due to noise complaints from adjacent landowners both on State highways and County highways, including Brown County. While stop condition rumble strips may not help with pull-out type crashes, they should help reduce the number of failing to stop crashes.

The U.S. Department of Transportation Federal Highway Administration's (FHWA) studied the effectiveness of transverse rumble strips on approaches to stop-controlled intersections in rural areas. They found a "statistically significant reduction in KAB crashes (about 21 percent) and KA crashes (about 39 percent)."[4] *('K' represents fatal crashes, 'A' represents incapacitating injury crashes, and 'B' represents non-incapacitating injury crashes.)*

In Brown County, the intersections where recent failing to stop fatal crashes have occurred have been signed correctly and many have been in daylight hours with no adverse weather conditions present. We should not expect that additional signage will reduce the failure to stop crashes as some form of distracted driving is a cause or contributing factor in the crashes.

The use of stop condition rumble strips gives the driver who is distracted (visually, manually, or cognitively) the warning that a stop condition is ahead in a physical and audible manner. It is a similar use as centerline and shoulder rumble strips – a physical and audible warning to the distracted driver to stay within their lane to avoid a runoff crash or a head-on collision. While impaired drivers are another matter, these safety treatments may help the impaired driver in a similar manner as the distracted driver.

The Brown County Public Works Department has developed the following six criteria for determining when a stop controlled rumble strip will be considered:

1. **Speed on intersecting roadways are posted over 50 mph (especially the intersection of two 55 mph roadways).**

   Higher speed crashes result in an increase in fatalities and severe injuries. The FHWA references a study from the Netherlands that states, "In general, however, the relation is very clear and has been shown in a large number of studies: the higher the speed, the greater the probability of a crash. At the same percentage increase in speed, the crash rate on rural roads increases more than the crash rate on urban roads…As the speed increases, the injury severity in crashes also increases…"[5]

2. **"At the intersection of 2 highways that have similar functional class or the AADT (Average Annual Daily Traffic) volumes may be similar."[3]**

3. **At a stop condition where "the driver expectancy is that the facility they are driving on would not have a stop condition."[3]**

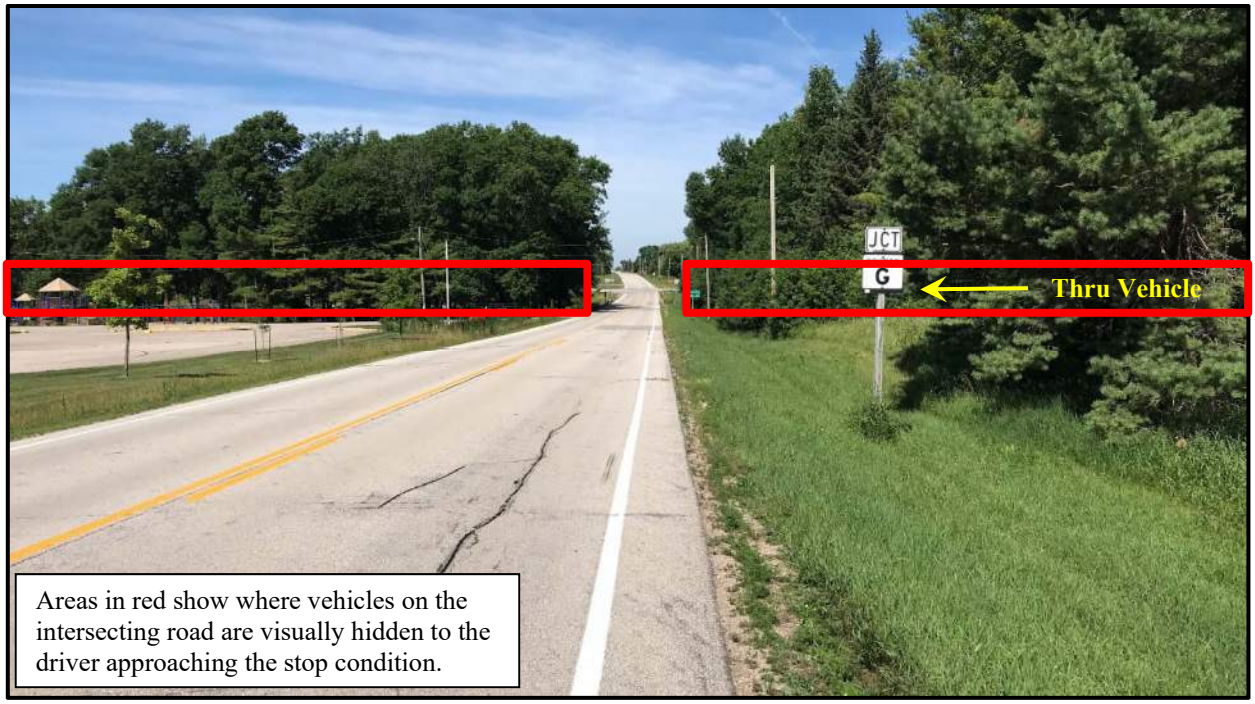
   On many County highways, the County highway is the primary through roadway with local roads having stop conditions. A driver can experience no stops on the County highway for miles at a time until there is a two-way or four-way stop with another County highway or State highway (this is part of criteria #2 as well).

   The guidelines from the State of Maryland state:

   "Transverse rumble strips should be considered on the approaches to intersections where there is a demonstrated safety problem (e.g. high crash rate), adequate trial of other warning devices has failed to reduce the crash frequency, and any of the following conditions exist:

   - Inadequate stopping sight distance or signal/sign visibility.
   - Intersection is at an unexpected location.
   - Intersection is located on a roadway on which motorists have not been required to stop for a long period of time or distance."[6]

4. **Where the through roadway is visually hidden or concealed by trees, buildings, vertical crest curve or horizontal curve, etc.** ("geometrics of the roadway may prevent the driver from seeing the approaching intersection…"[3])



Cognitively, there are no visual stimuli (such as seeing a vehicle on the other road approaching the intersection) to alert the driver there is a stop condition, or even an intersection coming up. If a driver has not mentally seen or processed the 'Stop Ahead' and/or 'Stop' signs, there is very little else to alert him/her of the upcoming intersection.

5. **Where there is no visual prompt of an upcoming intersection (other than signs) – no interruption of the roadway 'corridor'.**

CTH T looking north at CTH K – the 'Stop Ahead' sign is just to the right of where this picture was taken.

Cognitively, the view looks as it has for miles where there was no stop condition. The roadway corridor continues seemingly without interruption – the road is straight, the line of power poles, etc. create a corridor look and feel that would not visually prompt a driver there is an intersection coming up. If a driver has not mentally seen or processed the 'Stop Ahead' and/or 'Stop' signs, there is very little else to alert him/her of the upcoming intersection.

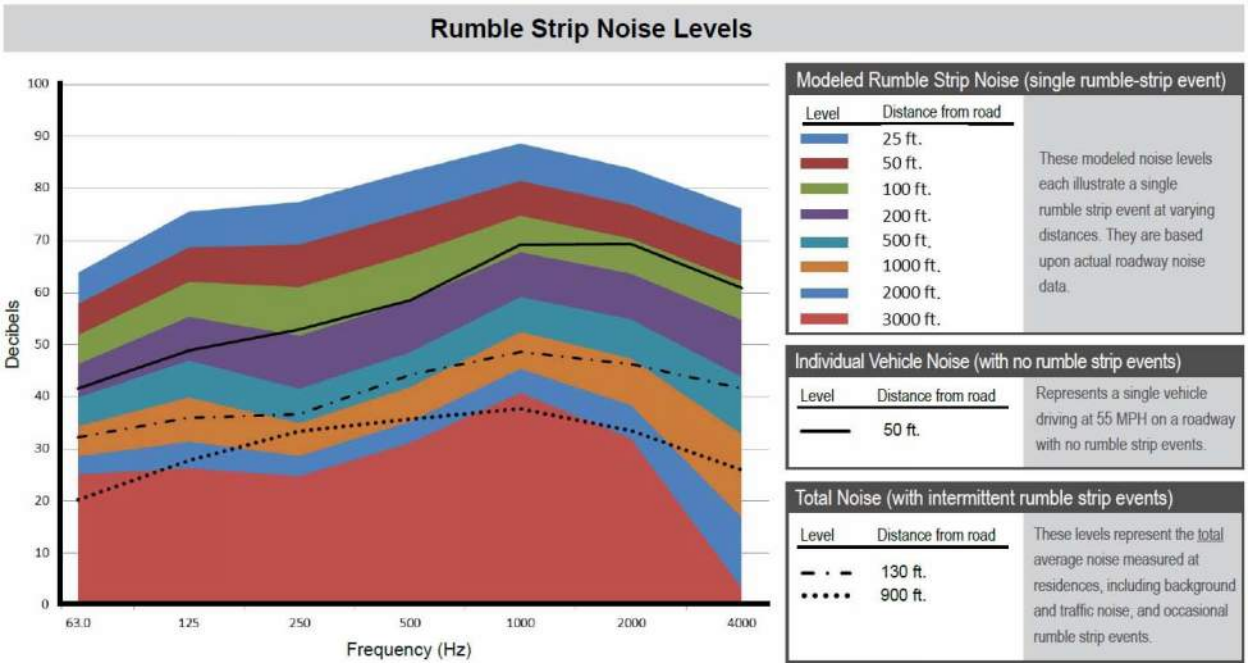
6. **"There is a perceived or demonstrated crash problem…"[3]**

There may be areas where the speed limits are 45 mph or the intersection doesn't fall into the first five categories. If there is a demonstrated crash problem; however, it may be worth installing a stop condition rumble strip to address the issue.

Other Considerations:

As noted earlier, noise concerns have been the primary reason the industry (at least in Wisconsin) has moved away from installing stop condition rumble strips. The Minnesota DOT conducted a study of noise levels near rumble strips.[7] The study showed that distance from the road is key when comparing noise levels. The study looked at typically acceptable residential noise levels for daytime and nighttime in terms of decibels – 65 decibels for day and 55 decibels for night where the sound is taking place 10% of the time. By way of every day comparison, 65 decibels is the sound of normal speech at 3 feet, 80 decibels is the background of a noisy urban environment, and 90 decibels is the sound of a food blender at 3 feet.

A baseline for comparison was established using a single vehicle driving at 55 mph on a roadway with no rumble strips 50' away. The decibel range was from 45 to 65 decibels. With rumble strips we see approximately the same sound levels if the distance from the road is 100 to 150 feet away.



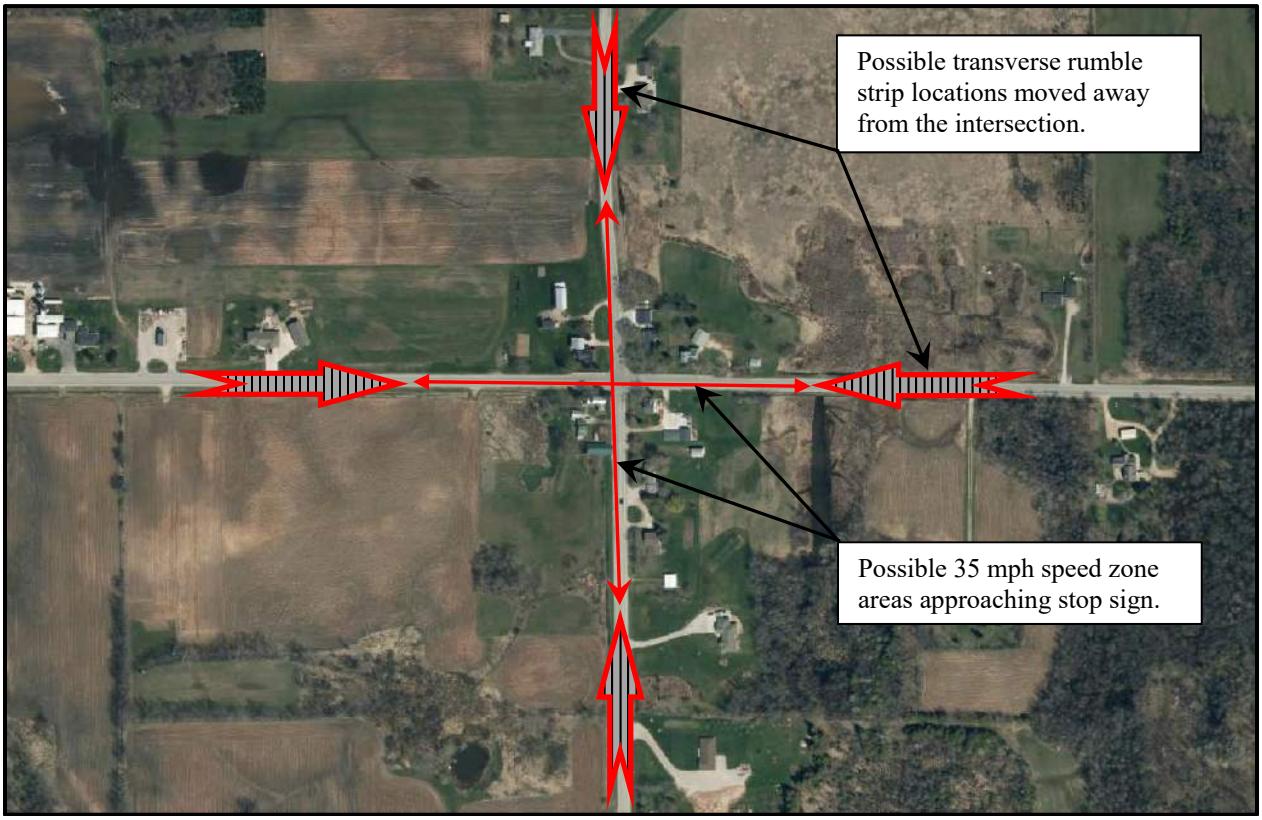
Note: Chart from the Minnesota DOT Study.[7]

For Brown County, where homes are 100' or less away from the location of a rumble strip, other measures should be examined due to the noise levels. There may be cases where nothing can be done to mitigate the noise levels even where homes are closer than 100'; but as a guideline where there are homes within 100' of a potential rumble strip other measures will be more seriously considered.

The cost for installing the rumble strips is estimated at $2,000 to $3,000 per intersection (two legs) if the Brown County Public Works Department performs the work.

Example of 'Other Considerations':

The aerial photo below is at the intersection of CTH T and CTH N in the Town of Humboldt. The intersection is a 4-way stop intersection with 55 mph speed limits on both roadways. The homes at the intersection are 50' – 60' away from where rumble strips would be installed according to the WisDOT standard detail drawing. In this case, other measures such as lowering the speed limit to 35 mph on both roads centered on the 4-way stop and placing transverse rumble strips at the speed change, further away from the homes, may be the best measure possible in lieu of rumble strips at the intersection. If there were no homes in extremely close proximity, then rumble strips at the intersection would be the best solution to address potential distracted drivers. Moving the rumble strips away from the homes at the intersection does move the rumble strips closer to other homes on each approach. At least there would only be one set of rumble strips at those locations instead of having all four sets right near intersection.



County Road Safety Plan

The Brown County Public Works Department is a few weeks away from having the County Road Safety Plan (CRSP) completed. The CRSP was a 2018 budget initiative that will analyze crash data and identify specific low cost safety projects that are linked to causation factors associated with the most severe crashes on the County's system of highways. The 2018 County budget book noted that, "Future projects may include edge line rumble strips, enhanced pavement marking, enhanced curve delineation, enhanced intersection signage, dynamic warning devices, etc." We will be considering stop control rumble strips as one of the safety tools to be utilized as part of that report.

Implementation

The Brown County Public Works Department will review the CRSP in August/September of this year and plan to install high priority rumble strips this fall. We will continue to install stop control rumble strips with future projects as well as identified intersections that meet the criteria of this report.

References

1. Centers for Disease Control and Prevention
   https://www.cdc.gov/motorvehiclesafety/distracted_driving/index.html

2. U.S. Department of Transportation National Highway Traffic Safety Administration
   https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812517

3. State of Wisconsin Facilities Development Manual Chapter 11-15-1.5
   https://wisconsindot.gov/rdwy/fdm/fd-11-15.pdf#fd11-15-1.5

4. U.S. Department of Transportation Federal Highway Administration's Summary Report – Safety Evaluation of Transverse Rumble Strips on Approaches to Stop-Controlled Intersections in Rural Areas
   https://www.fhwa.dot.gov/publications/research/safety/hsis/12047/12047.pdf

5. Institute for Road Safety Research - SWOV Fact Sheet: The relation between speed and crashes
   https://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa1304/Resources3/08%20-%20The%20Relation%20Between%20Speed%20and%20Crashes.pdf

6. State of Maryland Guidelines for Application of Rumble Strips and Rumble Stripes
   https://www.roads.maryland.gov/OOTS/GuidelinesApplRumbleStripsStripes.pdf

7. Minnesota Department of Transportation – Noise from Centerline Rumble Strips
   http://www.dot.state.mn.us/trafficeng/safety/rumble/genericrumblestrip.pdf

Appendix B – List of Priority Locations for Stop Condition Rumble Strips

Brown County - County Road Safety Plans
Transverse Rumble Strip Location Identification
October 30, 2018

Transverse Rumble Strip Criteria

Edit values in light blue boxes to change criteria

Not used	Criteria 1	Criteria 2	Criteria 3	Criteria 4	
50	50	10%	Yes		

Intersection ID	Route Name	Local Name	Cross Street	Local Name	Area Type	Intersection Configuration	Design	Traffic Control	Minor Approach Speed Limit	Major Approach Speed Limit	Average Major AADT	Average Minor AADT	Average AADT Difference	Previous Stop Greater than 5 Miles	K + A Crashes	Speed (Either Road >50MPH)	Speed (Both Roads >50MPH)	AADT (% diff in major and minor AADT)	Driver Expectancy (Previous stop greater then 5 miles)	K+A Crashes > 0	Priority (total checks for 4 criteria)
I.A.01	CTH A	Nicolet Drive	State Highway 54	Scottwood Drive	Urban	T	Traditional	Thru-Stop	35	35	2100	7050	-4950	No	0						
I.A.02	CTH A	Nicolet Drive	CTH K	Fischer Road	Urban	T	Traditional	Thru-Stop	55	35	940	450	490	No	0	✓					
I.A.03	CTH A	Nicolet Dr / N New Franken Ave	State highway 57	Sturgeon Bay Road	Rural	X	Traditional	Thru-Stop	45	65	11500	465	11035	Yes	1				✓	✓	✓✓
I.AAA.01	CTH AAA	Waube Lane	County Road EB	Packerland Drive	Urban	X	Traditional	Signal	35	45	10400	5500	4900	No	0						
I.AAA.03	CTH AAA	S Oneida Street	CTH HH	Van Der Perren Way	Urban	X	Traditional	Signal	35	30	23000	3900	19100	No	0						
I.AAA.04	CTH AAA	S Oneida Street	CTH YY	Pilgrim Way	Urban	X	Traditional	Signal	35	30	21700	6650	15050	No	0						
I.B.02	CTH B	Crest Drive	CTH C	Woodside Drive	Rural	X	Traditional	Thru-Stop	55	35	2950	950	2000	No	0	✓					
I.B.03	CTH B	Crest Drive	CTH C	Unknown	Rural	T	Traditional	Thru-Stop	55	35	3450	1400	2050	Yes	1	✓			✓	✓	✓✓
I.B.04	CTH B	School Lane	CTH M	Flintville Road	Urban	X	Traditional	Thru-Stop	35	45	4450	1300	3150	Yes	0				✓		✓
I.B.05	CTH B	School Lane	Restoration Road	Restoration Road	Urban	T	Traditional	Thru-Stop	45	45	5450	820	4630	No	0						
I.B.08	CTH B	School Lane	CTH J	North lakevie Drive	Urban	X	Traditional	Thru-Stop	35	35	1250	1380	-130	No	0			✓			✓
I.BB.01	CTH BB	Copperstown Road	CTH R	North Packer Drive	Rural	X	Traditional	Thru-Stop	55	55	2700	1900	800	No	0	✓	✓				✓
I.C.01	CTH C	Shawano Avenue	CTH J	Riverview Drive	Urban	X	Traditional	Signal	45	40	9900	5850	4050	No	0						
I.C.03	CTH C	Unknown	CTH U	Kunesh Road	Rural	T	Traditional	Thru-Stop	35	35	1400	1100	300	Yes	0				✓		✓
I.CE.01	CTH CE	Business Q	CTH D	CTH D	Urban	T	Traditional	Thru-Stop	30	30	2150	1800	350	Yes	0				✓		✓
I.D.02	CTH D	Unknown	CTH Z	Hill Road	Rural	X	Traditional	Thru-Stop	55	55	1900	1100	800	No	1	✓	✓			✓	✓✓
I.D.03	CTH D	Plum Road	State Highway 96	High Street	Urban	T	Traditional	Thru-Stop	30	35	3500	1900	1600	Yes	0				✓		✓
I.D.05	CTH D	Lost Dauphin Road	CTH FF	Scheuring Road	Urban	T	Traditional	Thru-Stop	25	35	5050	4200	850	No	0						
I.DD.02	CTH DD	Broadway Street	CTH DDD	Steffins Curve	Urban	T	Traditional	Thru-Stop	45	55	3100	0	3100	No	0						
I.DK.01	CTH DK	Sturgeon Bay Road	State Highway 57	State Highway 57	Urban	X	Traditional	Thru-Stop	65	45	575	1800	-1225	Yes	0	✓			✓		✓
I.E.01	CTH E	Freedom Road	CTH U	S County Line Road	Rural	T	Traditional	Thru-Stop	55	40	3500	1900	1600	No	0	✓					
I.E.02	CTH E	Freedom Road	CTH U	E Service Road	Urban	X	Traditional	Thru-Stop	35	40	3050	0	3050	No	0						
I.EA.02	CTH EA	S Huron Road	CTH V	E Mason Street	Urban	X	Traditional	All-Way Stop	35	40	5100	4800	300	No	0			✓			✓
I.EA.03	CTH EA	N Huron Road	CTH N	Humboldt Road	Urban	X	Traditional	Signal	40	35	5000	2300	2700	No	0						
I.EB.01	CTH EB	Scheuring Road	CTH F	Williams Grant Drive	Rural	X	Traditional	All-Way Stop	45	55	8000	2150	5850	No	0						
I.EB.02	CTH EB	Packerland Drive	CTH EE	Orlando Drive	Rural	X	Traditional	All-Way Stop	55	45	4600	3150	1450	No	0	✓					
I.EB.03	CTH EB	Packerland Drive	CTH G	Fernando Drive	Urban	X	Traditional	Signal	45	45	6700	1650	5050	No	0						
I.EB.04	CTH EB	Packerland Drive	CTH G	W Main Avenue	Urban	X	Traditional	Signal	35	35	6700	5100	1600	No	0						
I.EB.05	CTH EB	Packerland Drive	State Highway 172	Airport Drive	Urban	X	Traditional	Signal	35	45	18050	14250	3800	No	1					✓	✓
I.EB.06	CTH EB	County Road EB	CTH VK	Hazelwood Lane	Urban	X	Traditional	Signal	30	45	15900	4250	11650	No	1					✓	✓
I.EB.07	CTH EB	County Road EB	State Highway 54	W Mason Street	Urban	X	Traditional	Signal	35	35	17900	18100	-200	No	4			✓		✓	✓✓
I.EB.12	CTH EB	Cardinal Lane	CTH J	Riverview Drive	Urban	X	Traditional	Signal	40	35	14900	9900	5000	No	1					✓	✓
I.EB.16	CTH EB	County Road EB	CTH M	Lineville Road	Rural	X	Traditional	Thru-Stop	55	35	1765	960	805	No	0	✓					
I.EE.01	CTH EE	Orlando Drive	CTH U	S County Line Road	Rural	X	Traditional	Thru-Stop	55	55	2600	0	2600	No	2	✓	✓			✓	✓✓
I.EE.02	CTH EE	Orlando Drive	CTH GE	S Pine Tree Road	Rural	X	Traditional	Thru-Stop	55	35	3450	2100	1350	No	1	✓				✓	✓
I.EE.06	CTH EE	5th Street	State Highway 32	Reid Street	Urban	X	Traditional	Signal	25	25	10900	3100	7800	No	0						
I.EE.07	CTH EE	5th Street	State Highway 32	Main Street	Urban	X	Traditional	Thru-Stop	25	25	12100	2400	9700	No	0						
I.F.01	CTH F	Williams Grant Drive	CTH S	Freedom Road	Rural	X	Traditional	Thru-Stop	55	45	3650	800	2850	No	0	✓					
I.FF.01	CTH FF	Hillcrest Drive	State Highway 54	W Mason Street	Urban	X	Traditional	Thru-Stop	45	35	9050	2900	6150	No	0						
I.FF.02	CTH FF	Hillcrest Drive	CTH J	Riverdale Drive	Urban	X	Traditional	All-Way Stop	35	45	4350	1400	2950	No	0						
I.G.01	CTH G	Dickinson Road	CTH W	CTH W	Urban	X	Traditional	All-Way Stop	35	35	685	800	-115	Yes	0				✓		✓
I.G.02	CTH G	Dickinson Road	CTH Z	Park Road	Rural	X	Traditional	Thru-Stop	55	55	1100	635	465	No	2*	✓	✓			✓	✓✓
I.G.03	CTH G	Dickinson Road	State Highway 96	Lark Road	Rural	X	Traditional	All-Way Stop	55	55	1600	1300	300	No	0	✓	✓				✓
I.G.04	CTH G	Chicago Street	State Highway 96	Shirley Road	Rural	X	Traditional	All-Way Stop	55	55	2100	1600	500	No	0	✓	✓				✓
I.G.05	CTH G	Chicago Street	CTH X	CTH X	Rural	X	Traditional	Thru-Stop	55	55	2250	810	1440	No	0	✓	✓				✓
I.G.06	CTH G	Dickinson Road	CTH MM	Dutchman Road	Rural	T	Traditional	Thru-Stop	55	55	3350	0	3350	No	0	✓	✓				✓
I.G.07	CTH G	Dickinson Road	CTH V	Line Kiln Road	Rural	X	Traditional	Thru-Stop	45	55	4500	1800	2700	No	0						
I.G.09	CTH G	S Webster Avenue	CTH X	N Webster Avenue	Urban	T	Traditional	All-Way Stop	30	35	9100	7300	1800	No	0						
I.G.13	CTH G	Fernando Drive	CTH GE	S Pine Tree Road	Rural	X	Traditional	Thru-Stop	55	45	1700	1700	0	No	3	✓		✓		✓	✓✓
I.GE.02	CTH GE	County Highway GE	State Highway 54	W Mason Street	Urban	T	Traditional	Thru-Stop	45	35	6900	2600	4300	No	0						
I.GV.03	CTH GV	Monroe Road	State Highway 172 Ramps	State Highway 172 Ramps	Urban	X	Traditional	Signal	70	45	18400	7400	11000	No	0	✓					
I.GV.04	CTH GV	Monroe Road	State Highway 172 Ramps	State Highway 172 Ramps	Urban	X	Traditional	Signal	70	45	19500	7400	12100	No	0	✓					
I.GV.06	CTH GV	Monroe Road	CTH V	Lime Kiln Road	Urban	T	Traditional	Signal	35	45	18200	5600	12600	No	0						
I.GV.07	CTH GV	Monroe Road	CTH O	Allouez Avenue	Urban	X	Traditional	Signal	35	35	13800	9800	4000	No	1					✓	✓
I.H.01	CTH H	Ft Howard Avenue	State Highway 32	N Ashland Avenue	Urban	X	Traditional	Thru-Stop	35	45	19300	4450	14850	No	3					✓	✓
I.H.02	CTH H	S Broadway	Hansen Road	Hansen Road	Urban	T	Traditional	All-Way Stop	35	35	5100	4700	400	No	0			✓			✓
I.H.03	CTH H	Cormier Road	State Highway 32	S Ashland Avenue	Urban	X	Traditional	Signal	25	45	22450	5150	17300	No	2					✓	✓
I.HH.01	CTH HH	Van Der Perren Way	State Highway 32	S Ashland Avenue	Urban	T	Traditional	Signal	35	45	22450	5600	16850	No	1					✓	✓
I.HH.02	CTH HH	Hansen Road	State Highway 32	S Ashland Avenue	Urban	X	Traditional	Signal	35	45	20350	5450	14900	No	0						
I.J.01	CTH J	Riverdale Avenue	CTH U	N County Line Road	Rural	T	Traditional	Thru-Stop	30	30	2900	1500	1400	Yes	0				✓		✓
I.JJ.01	CTH JJ	Verlin Road	CTH V	Line Kiln Road	Urban	X	Traditional	Signal	35	35	10400	5100	5300	No	0						

Brown County - County Road Safety Plans
Transverse Rumble Strip Location Identification
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Transverse Rumble Strip Criteria

Edit values in light blue boxes to change criteria

Not used	Criteria 1	Criteria 2	Criteria 3	Criteria 4	
50	50	10%	Yes		

Intersection ID	Route Name	Local Name	Cross Street	Local Name	Area Type	Intersection Configuration	Design	Traffic Control	Minor Approach Speed Limit	Major Approach Speed Limit	Average Major AADT	Average Minor AADT	Average AADT Difference	Previous Stop Greater than 5 Miles	K + A Crashes	Speed (Either Road >50MPH)	Speed (Both Roads >50MPH)	AADT (% diff in major and minor AADT)	Driver Expectancy (Previous stop greater then 5 miles)	K+A Crashes > 0	Priority (total checks for 4 criteria)
I.JJ.05	CTH JJ	Eaton Road	CTH QQ	S Vandenberg Road	Rural	X	Traditional	Thru-Stop	55	55	2400	0	2400	No	1	✓	✓			✓	✓✓
I.JJ.06	CTH JJ	Eaton Road	S New Franken Road	S New Franken Road	Rural	X	Traditional	Thru-Stop	55	55	2400	1200	1200	No	0	✓	✓				✓
I.JJ.07	CTH JJ	Eaton Road	CTH P	S SugarBush Road	Rural	X	Traditional	Thru-Stop	55	55	1100	0	1100	No	0	✓	✓				✓
I.K.01	CTH K	Fischer Road	State Highway 57	Sturgeon Bay Road	Rural	T	Traditional	Thru-Stop	65	55	12400	450	11950	No	0	✓	✓				✓
I.K.02	CTH K	Champion Road	State Highway 57	Sturgeon Bay Road	Rural	X	Traditional	Thru-Stop	65	45	12700	1500	11200	Yes	2	✓			✓	✓	✓✓
I.K.03	CTH K	Champion Road	N New Franken Road	N New Frnaken Road	Rural	X	Traditional	Thru-Stop	55	55	1120	590	530	No	1*	✓	✓			✓	✓✓
I.K.04	CTH K	Champion Road	CTH P	N Sugarbush Road	Rural	T	Traditional	Thru-Stop	45	55	1100	1100	0	No	0			✓			✓
I.K.05	CTH K	Champion Road	CTH P	N Sugarbush Road	Rural	T	Traditional	Thru-Stop	55	45	1200	1100	100	No	0	✓		✓			✓
I.KB.01	CTH KB	Shirley Road	U.S. Highway 43 Ramps	U.S. Highway 43 Ramps	Rural	X	Traditional	Thru-Stop	35	70	1625	4350	-2725	No	0						
I.KB.02	CTH KB	Depere Road	CTH R	CTH R	Urban	X	Traditional	All-Way Stop	45	35	5750	2950	2800	No	0						
I.KB.03	CTH KB	Depere Road/Wisconsin Avenue	CTH T	N Wall Street	Urban	T	Traditional	Thru-Stop	25	25	3600	3100	500	Yes	0				✓		✓
I.KB.04	CTH KB	Wisconsin Avenue	CTH T	Wisconsin Avenue	Urban	T	Traditional	Thru-Stop	35	45	2450	1300	1150	No	0						
I.KB.05	CTH KB	CTH KB	CTH P	CTH P	Rural	T	Traditional	Thru-Stop	55	55	1350	380	970	No	0	✓	✓				✓
I.MM.01	CTH MM	Elm View Road	Interstate 43 Ramps	Interstate 43 Ramps	Rural	X	Traditional	Thru-Stop	55	70	1970	4800	-2830	No	0	✓	✓				✓
I.MW.01	CTH MW	High Street	CTH ZZ	Washington Street	Urban	X	Traditional	All-Way Stop	25	30	6100	1650	4450	No	0						
I.N.01	CTH N	Humboldt Road	CTH QQ	S Vandenberg Road	Rural	X	Traditional	Thru-Stop	55	45	1350	0	1350	No	0	✓					
I.N.02	CTH N	Humboldt Road	S New Franken Road	S New Franken Road	Rural	X	Traditional	All-Way Stop	55	55	1500	1230	270	No	0	✓	✓				✓
I.N.03	CTH N	Humboldt Road	CTH P	S SugarBush Road	Rural	X	Traditional	All-Way Stop	55	55	1350	980	370	No	0	✓	✓				✓
I.NN.01	CTH NN	CTH NN	CTH Z	Park Road	Rural	X	Traditional	All-Way Stop	55	55	720	0	720	No	0	✓	✓				✓
I.NN.02	CTH NN	CTH NN	State Highway 96	Shirley Road	Rural	X	Traditional	Thru-Stop	55	55	1800	1015	785	No	0	✓	✓				✓
I.NN.03	CTH NN	CTH NN	CTH X	Depere Road	Rural	X	Traditional	All-Way Stop	55	55	2000	1100	900	No	0	✓	✓				✓
I.NN.04	CTH NN	Stagecoach Road	CTH R	Main Street	Rural	T	Traditional	Thru-Stop	55	55	4700	930	3770	No	0	✓	✓				✓
I.O.01	CTH O	W Allouez Avenue	State Highway 57	Riverside Drive	Urban	T	Traditional	Thru-Stop	25	35	13500	3900	9600	No	0						
I.O.02	CTH O	W Allouez Avenue	CTH XX	S Webster Avenue	Urban	X	Traditional	Signal	25	35	15550	6050	9500	No	0						
I.O.04	CTH O	Allouez Avenue	CTH XX	Bellevue Street	Urban	X	Traditional	Signal	45	35	11350	6350	5000	No	0						
I.OO.01	CTH OO	CTH OO	CTH W	E River Road	Rural	X	Traditional	Thru-Stop	55	55	810	665	145	No	0	✓	✓				✓
I.OO.02	CTH OO	CTH OO	CTH X	CTH X	Rural	T	Traditional	Thru-Stop	55	55	760	540	220	No	0	✓	✓				✓
I.P.01	CTH P	CTH P	CTH R	CTH R	Rural	T	Traditional	Thru-Stop	55	55	2700	380	2320	No	0	✓	✓				✓
I.P.02	CTH P	CTH P	State Highway 29	Kewaunee Road	Rural	X	Traditional	Thru-Stop	55	55	5150	1050	4100	No	2	✓	✓			✓	✓✓
I.P.03	CTH P	S Sugarbush Road	Finger Road	Finger Road	Rural	X	Traditional	Thru-Stop	55	55	1250	750	500	No	0	✓	✓				✓
I.P.04	CTH P	N Sugarbush Road	State Highway 54	Algoma Road	Rural	X	Traditional	Thru-Stop	55	55	6900	1200	5700	No	3	✓	✓			✓	✓✓
I.P.05	CTH P	N Sugarbush Road	CTH SS	CTH SS	Rural	T	Traditional	Thru-Stop	45	45	1200	0	1200	No	0						
I.P.06	CTH P	N Sugarbush Road	State Highway 57 Ramps	State Highway 57 Ramps	Rural	X	Traditional	Thru-Stop	45	65	545	1500	-955	Yes	0				✓		✓
I.PP.01	CTH PP	CTH PP	CTH Z	Hill Road	Rural	X	Traditional	All-Way Stop	55	55	1800	910	890	No	0	✓	✓				✓
I.PP.02	CTH PP	CTH PP	State Highway 96	Day Street	Rural	X	Traditional	Thru-Stop	55	55	3500	1800	1700	No	0	✓	✓				✓
I.PP.03	CTH PP	CTH PP	State Highway 96	Day Street	Rural	X	Traditional	Thru-Stop	55	55	3100	1500	1600	Yes	0	✓	✓		✓		✓✓
I.PP.04	CTH PP	CTH PP	CTH W	E River Road	Rural	T	Traditional	Thru-Stop	55	55	2950	540	2410	No	0	✓	✓				✓
I.PP.06	CTH PP	S Broadway Street	State Highway 57	State Highway 57			Traditional		35	45	12950	9000	3950	No	0						
I.QQ.01	CTH QQ	S Vandenberg Road	State Highway 29	Kewaunee Road	Rural	X	Traditional	Thru-Stop	55	55	5800	0	5800	No	0	✓	✓				✓
I.QQ.02	CTH QQ	S Vandenberg Road	CTH V	Finger Road	Rural	X	Traditional	All-Way Stop	55	55	2500	0	2500	No	0	✓	✓				✓
I.R.01	CTH R	N Packer Drive	CTH T	Maribel Road	Rural	X	Traditional	Thru-Stop	45	55	3250	1200	2050	No	0						
I.R.02	CTH R	CTH R	CTH T	Wisconsin Avenue	Rural	T	Traditional	Thru-Stop	35	45	3450	1300	2150	No	0						
I.R.03	CTH R	Main Street	CTH MM	Elm View Road	Rural	X	Traditional	Thru-Stop	55	55	6150	7100	-950	No	2	✓	✓			✓	✓✓
I.S.01	CTH S	Freedom Road	U.S. Highway 41 Ramps	U.S. Highway 41 Ramps	Rural	X	Traditional	Thru-Stop	45	70	1900	4000	-2100	Yes	0				✓		✓
I.S.02	CTH S	Freedom Road	U.S. Highway 41 Ramps	U.S. Highway 41 Ramps	Rural	X	Traditional	Thru-Stop	45	70	1560	4000	-2440	Yes	0				✓		✓
I.T.01	CTH T	S New Franken Road	State Highway 29	Kewaunee Road	Rural	X	Traditional	Thru-Stop	55	45	5750	1250	4500	No	0	✓					
I.T.02	CTH T	S New Franken Road	Finger Road	Finger Road	Rural	X	Traditional	All-Way Stop	55	55	1675	1500	175	No	0	✓	✓				✓
I.T.03	CTH T	N New Franken Road	State Highway 54	Algoma Road	Rural	X	Traditional	Thru-Stop	55	45	7150	1650	5500	No	2	✓				✓	✓
I.U.01	CTH U	W Mason Street	E Service Road	E Service Road	Urban	T	Traditional	Thru-Stop	25	35	11200	0	11200	No	0						
I.U.02	CTH U	W Mason Street	Service Road D	Service Road D	Urban	T	Traditional	Thru-Stop	30	35	10650	2200	8450	No	0						
I.U.03	CTH U	N County Line Road	CTH VV	Triangle Drive	Rural	X	Traditional	Thru-Stop	55	55	2800	1800	1000	No	0	✓	✓				✓
I.U.04	CTH U	N County Line Road	State Highway 32	State Highway 32	Rural	X	3-4	Thru-Stop	45	65	19800	1855	17945	No	0						
I.VK.01	CTH VK	Lombardi Avenue	U.S. highway 41 Ramps	U.S. highway 41 Ramps	Urban	X	Traditional	Signal	30	70	6650	15650	-9000	No	0						
I.VK.02	CTH VK	Lombardi Avenue	U.S. highway 41 Ramps	U.S. highway 41 Ramps	Urban	X	Traditional	Signal	35	70	6750	15650	-8900	No	0						
I.VK.03	CTH VK	Lombardi Avenue	CTH AAA	S Oneida Street	Urban	X	Traditional	Signal	30	35	17900	11950	5950	No	0						
I.VK.04	CTH VK	Lombardi Avenue	State Highway 32	S Ashland Avenue	Urban	X	Traditional	Signal	35	35	20250	8300	11950	No	1					✓	✓
I.W.01	CTH W	CTH W	CTH Z	CTH Z	Rural	X	Traditional	Thru-Stop	55	55	755	470	285	No	1	✓	✓			✓	✓✓
I.W.02	CTH W	Hill Road	CTH Z	Park Road	Rural	X	Traditional	Thru-Stop	55	55	955	550	405	No	0	✓	✓				✓
I.X.01	CTH X	Depere Road	State Highway 96	Shirley Road	Rural	T	Traditional	Thru-Stop	55	55	1800	0	1800	No	0	✓	✓				✓
I.X.06	CTH X	S Webster Avenue	CTH XX	Hoffman Road	Urban	T	Traditional	All-Way Stop	25	35	13500	6300	7200	No	0						
I.Y.01	CTH Y	CTH Y	Old Wisconsin 29	Old Wisconsin 29	Rural	X	Traditional	Thru-Stop	45	55	1180	0	1180	No	0						

Brown County - County Road Safety Plans
Transverse Rumble Strip Location Identification
October 30, 2018

Intersection ID	Route Name	Local Name	Cross Street	Local Name	Area Type	Intersection Configuration	Design	Traffic Control	Minor Approach Speed Limit	Major Approach Speed Limit	Average Major AADT	Average Minor AADT	Average AADT Difference	Previous Stop Greater than 5 Miles	K + A Crashes
I.YY.01	CTH YY	Pilgrim Way	State Highway 32	S Ashland Avenue	Urban	X	Traditional	Signal	35	45	23550	5250	18300	No	0
I.Z.01	CTH Z	Hill Road	State Highway 32	Greenleaf Road	Rural	X	Traditional	Thru-Stop	55	55	3950	1105	2845	No	1
I.ZZ.01	CTH ZZ	Eiler Road	State Highway 32	Greenleaf Road	Rural	X	Traditional	Thru-Stop	55	55	5500	0	5500	Yes	0
I.IL.01	CTH IL	Mill Road	State Highway 57	State Highway 57	Rural	X	Traditional	Thru-Stop	55	55	4100	0	4100	No	1
I.VV.01	CTH VV	Triangle Drive	State Highway 29	Highway 29	Rural	X	3-4	Thru-Stop	55	65	24350	1400	22950	No	0
I.EE.03	CTH EE	Grant Street	Mid Valley Drive	Mid Valley Drive	Urban	X	Traditional	Thru-Stop	30	35	7250	3100	4150	No	3
I.X.03	CTH X	Heritage Road	Swan Road	Swan Road	Urban	X	Traditional	Thru-Stop	25	45	7100	3900	3200	No	0
I.D.01	CTH D	CTH D	CTH KK	Man Cal Road	Rural	X	Traditional	Thru-Stop	55	55	4200	2400	1800	No	1

Notes: * - Includes fatal and a severity crashes that occurred in 2018

Transverse Rumble Strip Criteria

Edit values in light blue boxes to change criteria

Not used	Criteria 1	Criteria 2	Criteria 3	Criteria 4	
50	50	10%	Yes		
Speed (Either Road >50MPH)	Speed (Both Roads >50MPH)	AADT (% diff in major and minor AADT)	Driver Expectancy (Previous stop greater then 5 miles)	K+A Crashes > 0	Priority (total checks for 4 criteria)
✓	✓			✓	✓✓
✓	✓		✓		✓✓
✓	✓			✓	✓✓
✓	✓				✓
				✓	✓
✓	✓			✓	✓✓
61	44	7	16	29	77

Appendix C – Full list of Segments, Curves and Intersections Included in the Project Analysis

Brown County - County Road Safety Plans
Rural 2-Lane Segment Data Summary
October 30, 2018

Count	Segment ID	Route Name	Local Name	From	To	Length	Speed Limit	AADT	Access Density	Lane Departure Crash Density	Critical Radius Curve Density	Edge Risk Assessment	Shoulder Width	Severe Crashes	Segment Crashes	Percent Rural Crashes	Critical Radius Curves	Right Shoulder Type	Left Shoulder Type
1	S.B.01	CTH B	Crest Drive	South St. Augustine Street	State Highway 32	1.0	45	2300	14.4	0.0	0.00	1	7	0	21	2.996	0.000	Composite	Composite
2	S.B.03	CTH B	School Lane	Pittco Road	Velp Avenue	4.1	45	9351	21.6	0.2	0.00	1	6	1	21	2.996	0.000	Composite	Composite
3	S.BB.01	CTH BB	W County Coad BB	CTH R	Irish Road	1.2	55	1300	7.5	0.8	0.00	1	7	0	4	0.571	0.000	Composite	Composite
4	S.C.05	CTH C	CTH C	N Brown County Line Road	CTH B	2.0	55	1400	14.9	0.2	0.00	2C	4	0	5	0.713	0.000	Composite	Composite
5	S.CE.01	CTH CE		Outagamie Road	CTH D	1.0	45/30	2000	37.1	0.4	0.98	2C	5	0	5	0.713	1.000	Composite	Composite
6	S.D.03	CTH D	CTH D	CTH CE	High Street	5.0	55	1900	16.9	0.6	0.20	2C	4	3	20	2.853	1.000	Composite	Composite
7	S.DD.02	CTH DD	Broadway Street	South County Line road	Steffins Curve	0.5	45	5250	21.8	0.8	0.00	1	7	0	4	0.571	0.000	Composite	Composite
8	S.DDD.01	CTH DDD	Steffins Curve	Broadway Street	French Road	1.9	55	500	11.9	0.0	0.00	2C	4	0	0	0.000	0.000	Gravel	Gravel
9	S.G.02	CTH G	Dickinson Road	CTH W	State Highway 96	4.2	55	1751	16.5	0.2	0.00	2C	7	1	17	2.425	0.000	Composite	Composite
10	S.G.03	CTH G	Chicago Street	State Highway 96	Lime Kiln Road	4.8	55	2200	12.1	0.3	0.00	1	8	0	25	3.566	0.000	Gravel	Gravel
11	S.G.11	CTH G	Fernando Drive	South Pine Tree Road	Packerland Drive	1.4	45	1700	12.8	0.1	0.00	2C	5	0	10	1.427	0.000	Paved	Paved
12	S.GE.01	CTH GE	South Pine Tree Road	Orlando Drive	State Highway 54	4.6	55	2280	19.4	0.8	0.00	1	6	2	33	4.708	0.000	Composite	Composite
13	S.IL.01	CTH IL	Mill Road	Unknown	Old 57 Road	0.6	55	500	7.1	0.0	0.00	2C	3	0	1	0.143	0.000	Paved	Paved
14	S.IL.02	CTH IL	Mill Road	Old 57 Road	State Highway 57	0.6	55	500	13.7	0.7	0.00	2C	6	1	4	0.571	0.000	Gravel	Gravel
15	S.IR.01	CTH IR	Reforestation Road	School Lane	Unknown	1.8	45	820	23.4	0.1	0.00	2C	4	0	2	0.285	0.000	Paved	Paved
16	S.IV.01	CTH IV	Finger Road	South Sugar Bush Road	South Degrand Road	0.9	55	750	21.0	0.2	0.00	2C	4	0	4	0.571	0.000	Gravel	Gravel
17	S.J.06	CTH J	North Lakeview Drive	Sunset Beach Road	Brown Road	3.0	45	660	11.8	0.7	0.00	2C	3	2	11	1.569	0.000	Gravel	Gravel
18	S.JJ.04	CTH JJ	Eaton Road	South Huron Road	South Sugar Bush Road	6.9	55	2400	15.8	0.3	0.29	2C	3	1	15	2.140	2.000	Gravel	Gravel
19	S.K.01	CTH K	Fischer Road	Nicolet Drive	State Highay 57	1.0	55	450	16.1	0.2	1.00	2C	6	0	1	0.143	1.000	Composite	Composite
20	S.K.02	CTH K	Champion Road	State Highway 57	County Line Road	6.4	55	1391	15.2	0.2	0.00	2C	4	2	21	2.996	0.000	Composite	Composite
21	S.KB.03	CTH KB	CTH KB	Wisconsin Avenue	CTH P	1.6	45	2351	16.4	0.0	0.63	2C	6	0	2	0.285	1.000	Composite	Composite
22	S.KB.04	CTH KB	CTH KB	CTH P	Irish Road	1.8	55	1701	9.1	0.9	0.57	1	6	3	11	1.569	1.000	Composite	Composite
23	S.KK.01	KK	Man Cal Road	Unknown	CTH D	1.0	55	4200	10.1	0.0	0.00	1	6	0	0	0.000	0.000	Composite	Composite
24	S.MM.01	CTH MM	Dutchman Road	Dickinson Road	Interstate 43	3.0	55	2500	14.2	0.7	0.00	2C	4	0	23	3.281	0.000	Composite	Composite
25	S.N.02	CTH N	Humboldt Road	North Grandview Road	South Degrand Road	6.9	45	2340	17.3	0.2	0.00	2C	6	0	9	1.284	0.000	Composite	Composite
26	S.NN.01	CTH NN	CTH NN	Park Road	Depere Road	5.4	55	1100	13.5	0.3	0.00	2C	5	2	16	2.282	0.000	Composite	Composite
27	S.NN.02	CTH NN	CTH NN	Main Street	Depere Road	4.5	55	930	11.0	0.3	0.22	2C	3	2	11	1.569	1.000	Gravel	Gravel
28	S.OO.01	CTH OO	CTH OO	Tower Road	Ridgeview Road	1.6	55	540	15.0	0.3	0.00	2C	3	0	2	0.285	0.000	Gravel	Gravel
29	S.P.01	CTH P	CTH P	North Packer Drive	CTH KB	1.2	55	380	12.7	0.5	0.00	2C	3	0	2	0.285	0.000	Gravel	Gravel
30	S.P.02	CTH P	CTH P	CTH KB	Finger Road	9.1	55	1494	14.3	0.1	0.00	2C	3	2	19	2.710	0.000	Gravel	Gravel
31	S.P.03	CTH P	North CTH P	Humboldt Road	CTH K	7.0	55	2020	11.6	0.4	0.00	2C	3	3	32	4.565	0.000	Gravel	Gravel
32	S.PP.01	CTH PP	CTH PP	North County Line Road	Day Street	5.1	55	1800	12.0	0.4	0.00	2C	6	2	18	2.568	0.000	Composite	Composite
33	S.PP.02	CTH PP	CTH PP	Day Street	School Road	2.2	55	1500	12.0	0.1	0.00	2C	6	0	3	0.428	0.000	Composite	Composite
34	S.PP.03	CTH PP	CTH PP	School Road	Rockland Road	5.2	55	5300	16.4	0.3	0.00	2C	6	0	19	2.710	0.000	Gravel	Gravel
35	S.QQ.01	CTH QQ	South Vandenberg Road	Kewaunee Road	Humboldt Road	4.0	55	1350	17.9	0.0	0.00	2C	3	0	1	0.143	0.000	Paved	Paved
36	S.R.01	CTH R	CTH R	Cooperstown Road	Depere Road	2.7	45	5714	10.6	0.1	0.00	2C	6	0	11	1.569	0.000	Composite	Composite
37	S.R.03	CTH R	CTH R	Stagecoach Road	North Avenue	5.5	55	5200	12.6	0.7	0.00	1	9	2	33	4.708	0.000	Composite	Composite
38	S.R.04	CTH R	Main Street	Stagecoach Road	Shadow Lane	0.5	55	4600	18.7	2.5	0.00	2C	7	0	7	0.999	0.000	Composite	Composite
39	S.R.05	CTH R	Main Street	Shadow Lane	Elm View Road	1.0	55	4700	6.2	0.6	0.00	1	9	0	28	3.994	0.000	Composite	Composite
40	S.S.01	CTH S	County Road S	South County Line road	Freedom Road	1.3	45	6970	15.8	0.0	0.00	1	6	0	16	2.282	0.000	Composite	Composite
41	S.S.02	CTH S	Freedom Road	County Road S	Lawrence Drive	0.2	45	5800	11.0	3.3	0.00	1	6	0	10	1.427	0.000	Paved	Paved
42	S.SS.01	CTH SS	CTH SS	North Sugarbush Road	County Line Road	1.0	45	500	20.7	0.4	0.00	1	3	0	2	0.285	0.000	Gravel	Gravel
43	S.T.01	CTH T	Maribel Road	Cooperstown Road	CTH R	0.6	45	1200	23.0	0.0	0.00	2C	3	0	1	0.143	0.000	Gravel	Gravel
44	S.T.04	CTH T	South New Franken Road/South Country Road T	North Avenue	Kewaunee Road	6.4	55	1300	11.9	0.4	0.00	2C	3	2	27	3.852	0.000	Gravel	Gravel
45	S.T.06	CTH T	South New Franken Road	Eaton Road	Humboldt Road	4.9	55	1500	18.0	0.4	0.00	2C	4	0	11	1.569	0.000	Gravel	Gravel
46	S.T.08	CTH T	North New Franken Road	Algoma Road	State Highway 57	5.6	55	1075	16.0	0.2	0.00	2C	5	0	5	0.713	0.000	Composite	Composite
47	S.U.01	CTH U	South County Line Road	Orlando Drive	Freedom Road	2.8	55	1500	17.1	0.0	0.36	2C	4	0	1	0.143	1.000	Paved	Paved
48	S.U.03	CTH U	North County Line Road	Riverdale Drive	State Highway 29	5.6	55	4540	12.9	0.1	0.00	2C	6	0	9	1.284	0.000	Composite	Composite
49	S.U.04	CTH U	County Line Road	State Highway 32	Glendale Avenue	0.2	45	910	5.9	0.0	0.00	1	6	0	2	0.285	0.000	Gravel	Gravel
50	S.U.05	CTH U	County Line Road	Glendale Avenue	Kunesh Road	2.0	45	910	21.2	0.0	0.00	2C	3	0	4	0.571	0.000	Paved	Paved
51	S.V.05	CTH V	Finger Road	Erie Road	South Sugar Bush Road	6.1	55	2841	17.8	0.5	0.66	2C	6	1	23	3.281	4.000	Composite	Composite
52	S.VV.01	CTH VV	Triangle Drive	North County Line Road	North Overland Road	1.2	55	1800	5.9	0.3	0.00	2C	4	0	6	0.856	0.000	Composite	Composite
53	S.W.01	CTH W	CTH W	Holland Town Road	Kings Road	1.4	55	900	11.9	0.7	0.70	1	6	1	4	0.571	1.000	Gravel	Gravel
54	S.W.03	CTH W	Hill Road	Unknown	Park Road	2.3	55	700	10.9	0.2	0.00	1	4	1	6	0.856	0.000	Gravel	Gravel
55	S.W.04	CTH W	CTH W	Park Road	Mill Road	1.1	55	1100	31.4	0.0	0.00	1	6	0	1	0.143	0.000	Gravel	Gravel

Brown County - County Road Safety Plans
Rural 2-Lane Segment Data Summary
October 30, 2018

Count	Segment ID	Route Name	Local Name	From	To	Length	Speed Limit	AADT	Access Density	Lane Departure Crash Density	Critical Radius Curve Density	Edge Risk Assessment	Shoulder Width	Severe Crashes	Segment Crashes	Percent Rural Crashes	Critical Radius Curves	Right Shoulder Type	Left Shoulder Type
56	S.W.05	CTH W	CTH W	Mill Road	Unknown	0.8	55	1300	26.0	0.3	0.00	2C	6	0	1	0.143	0.000	Gravel	Gravel
57	S.W.06	CTH W	CTH W	Unknown	CTH OO	5.2	55	790	12.2	0.2	0.00	2C	3	1	8	1.141	0.000	Gravel	Gravel
58	S.W.07	CTH W	East River Road	CTH W	CTH PP	2.9	55	540	12.6	0.1	0.34	2C	3	0	2	0.285	1.000	Gravel	Gravel
59	S.X.01	CTH X	CTH X	CTH NN	State Highway 96	10.1	55	2096	12.5	0.5	0.40	2C	4	2	33	4.708	4.000	Composite	Composite
60	S.Y.01	CTH Y	CTH Y	Shady Drive	Old Wisconsin 29	1.4	55	760	15.0	0.6	0.71	1	3	0	6	0.856	1.000	Gravel	Gravel
61	S.Z.01	CTH Z	CTH Z	Outagamie Road	CTH W	11.2	55	1348	9.4	0.4	0.00	2C	6	4	30	4.280	0.000	Composite	Composite
62	S.Z.02	CTH Z	Park Road	Hill Road	CTH NN	4.5	55	886	11.9	0.1	0.00	2C	6	0	5	0.713	0.000	Composite	Composite
63	S.ZZ.03	CTH ZZ	Eiler Road	Unknown	Greenleaf Road	5.1	45	1800	9.9	0.4	0.40	2C	3	1	17	2.425	2.000	Gravel	Gravel

Brown County - County Road Safety Plans

Rural Curve Data Summary

October 30, 2018

Count	Curve ID	Segment ID	Route Name	Local Name	Length	Radius	Speed Limit	AADT	Adjacent Intersection	Visual Trap	Total Severe Crashes	Total Crashes	Percent Rural Crashes
1	C.B.04	S.B.03	CTH B	School Lane	1853	2374	45	9351	Present	None	1	7	4.605
2	C.B.03	S.B.03	CTH B	School Lane	1780	2634	45	9351	Present	None	0	0	0.000
5	C.D.03	S.D.03	CTH D	CTH D	1095	1045	55	1900	None	None	1	6	3.947
6	C.D.04	S.D.03	CTH D	CTH D	1352	2159	55	1900	None	Present	0	4	2.632
7	C.D.05	S.D.03	CTH D	CTH D	1344	2886	55	1900	Present	None	0	1	0.658
8	C.DDD.01	S.DDD.01	CTH DDD	Steffins Curve	1338	1333	55	500	Present	None	0	0	0.000
9	C.DDD.02	S.DDD.01	CTH DDD	Steffins Curve	1314	2327	55	500	None	None	0	0	0.000
10	C.G.05	S.G.03	CTH G	Chicago Street	1439	2299	55	2200	Present	None	0	2	1.316
11	C.J.13	S.J.06	CTH J	North Lakeview Drive	703	1217	45	660	None	None	1	5	3.289
12	C.J.14	S.J.06	CTH J	North Lakeview Drive	786	2446	45	660	Present	None	0	1	0.658
13	C.JJ.06	S.JJ.04	CTH JJ	Eaton Road	912	547	55	2400	Present	Present	0	4	2.632
14	C.JJ.07	S.JJ.04	CTH JJ	Eaton Road	1095	632	55	2400	Present	Present	0	0	0.000
15	C.K.01	S.K.01	CTH K	Fischer Road	391	562	55	450	Present	Present	0	2	1.316
16	C.K.02	S.K.02	CTH K	Champion Road	807	406	55	1391	Present	Present	0	0	0.000
17	C.K.03	S.K.02	CTH K	Champion Road	504	295	55	1391	Present	Present	0	1	0.658
18	C.KB.05	S.KB.03	CTH KB	CTH KB	849	2416	45	2351	Present	None	0	1	0.658
19	C.KB.06	S.KB.03	CTH KB	CTH KB	1130	804	45	2351	Present	Present	0	3	1.974
20	C.KB.07	S.KB.04	CTH KB	CTH KB	1344	844	55	1701	Present	None	0	10	6.579
21	C.MM.01	S.MM.01	CTH MM	Dutchman Road	331	224	55	2500	Present	Present	0	2	1.316
22	C.MM.02	S.MM.01	CTH MM	Dutchman Road	738	408	55	2500	Present	None	0	2	1.316
23	C.N.01	S.N.02	CTH N	Humboldt Road	2666	2282	45	2340	Present	None	0	1	0.658
24	C.N.02	S.N.02	CTH N	Humboldt Road	1604	1380	45	2340	Present	None	0	4	2.632
25	C.NN.01	S.NN.02	CTH NN	CTH NN	820	1198	55	930	Present	Present	0	3	1.974
26	C.NN.03	S.NN.02	CTH NN	CTH NN	216	218	55	930	Present	None	0	3	1.974
27	C.P.03	S.P.01	CTH P	CTH P	453	461	55	380	0	0	0	2	1.316
28	C.P.04	S.P.02	CTH P	CTH P	889	1869	55	1494	Present	None	0	1	0.658
29	C.PP.01	S.PP.01	CTH PP	CTH PP	1944	2332	55	1800	None	None	0	2	1.316
30	C.PP.02	S.PP.03	CTH PP	CTH PP	1432	1688	55	5300	Present	None	0	6	3.947
31	C.PP.03	S.PP.03	CTH PP	CTH PP	1810	2122	55	5300	Present	None	0	7	4.605
32	C.T.04	S.T.04	CTH T	South New Franken Road/South Country Road T	541	337	55	1300	None	Present	0	0	0.000
33	C.T.05	S.T.04	CTH T	South New Franken Road/South Country Road T	506	318	55	1300	None	None	0	0	0.000
34	C.T.06	S.T.04	CTH T	South New Franken Road/South Country Road T	557	405	55	1300	Present	Present	0	2	1.316
35	C.T.07	S.T.04	CTH T	South New Franken Road/South Country Road T	578	409	55	1300	Present	Present	0	4	2.632
36	C.T.08	S.T.08	CTH T	North New Franken Road	200	227	55	1075	Present	Present	0	0	0.000
37	C.U.01	S.U.01	CTH U	South County Line Road	917	538	55	1500	None	None	0	0	0.000
38	C.U.04	S.U.04	CTH U	County Line Road	593	1521	45	910	Present	None	0	2	1.316
39	C.V.10	S.V.05	CTH V	Finger Road	792	1030	55	2841	None	None	0	0	0.000
40	C.V.11	S.V.05	CTH V	Finger Road	809	985	55	2841	None	None	0	0	0.000
41	C.V.12	S.V.05	CTH V	Finger Road	780	853	55	2841	Present	None	0	0	0.000
42	C.V.13	S.V.05	CTH V	Finger Road	791	873	55	2841	Present	None	0	2	1.316
43	C.VV.01	S.VV.01	CTH VV	Triangle Drive	864	1449	55	1800	Present	None	0	1	0.658
44	C.VV.02	S.VV.01	CTH VV	Triangle Drive	311	222	55	1800	Present	None	0	2	1.316

Brown County - County Road Safety Plans
Rural Curve Data Summary
October 30, 2018

Count	Curve ID	Segment ID	Route Name	Local Name	Length	Radius	Speed Limit	AADT	Adjacent Intersection	Visual Trap	Total Severe Crashes	Total Crashes	Percent Rural Crashes
45	C.W.01	S.W.01	CTH W	CTH W	1895	1122	55	900	Present	Present	1	1	0.658
46	C.W.07	S.W.03	CTH W	Hill Road	1179	2059	55	700	Present	None	0	3	1.974
47	C.W.08	S.W.04	CTH W	CTH W	1187	2156	55	1100	None	None	0	0	0.000
48	C.W.11	S.W.06	CTH W	CTH W	719	469	55	790	Present	None	0	0	0.000
49	C.W.10	S.W.06	CTH W	CTH W	1359	2380	55	790	Present	None	0	1	0.658
50	C.W.12	S.W.07	CTH W	East River Road	582	281	55	540	Present	Present	0	0	0.000
51	C.W.13	S.W.07	CTH W	East River Road	851	793	55	540	Present	Present	0	1	0.658
52	C.W.15	S.W.07	CTH W	East River Road	636	1213	55	540	Present	None	0	1	0.658
53	C.X.01	S.X.01	CTH X	CTH X	291	210	55	2096	Present	None	0	1	0.658
54	C.X.02	S.X.01	CTH X	CTH X	811	1199	55	2096	Present	None	0	3	1.974
55	C.X.03	S.X.01	CTH X	CTH X	886	455	55	2096	Present	Present	0	3	1.974
56	C.X.04	S.X.01	CTH X	CTH X	1136	888	55	2096	Present	Present	0	2	1.316
57	C.X.06	S.X.01	CTH X	CTH X	883	766	55	2096	Present	Present	0	5	3.289
58	C.X.05	S.X.01	CTH X	CTH X	983	2487	55	2096	None	None	0	2	1.316
59	C.X.07	S.X.01	CTH X	CTH X	595	448	55	2096	Present	Present	0	6	3.947
60	C.X.09	S.X.01	CTH X	CTH X	719	1621	55	2096	None	None	0	0	0.000
61	C.X.08	S.X.01	CTH X	CTH X	944	2635	55	2096	Present	None	0	6	3.947
62	C.X.10	S.X.01	CTH X	CTH X	798	854	55	2096	None	None	1	3	1.974
63	C.X.11	S.X.01	CTH X	CTH X	930	1323	55	2096	None	None	0	1	0.658
64	C.Y.01	S.Y.01	CTH Y	CTH Y	927	586	55	760	None	None	0	0	0.000
65	C.Z.01	S.Z.01	CTH Z	CTH Z	336	472	55	1348	Present	Present	1	9	5.921
66	C.ZZ.06	S.ZZ.03	CTH ZZ	Eiler Road	810	672	45	1800	Present	None	0	0	0.000
67	C.ZZ.07	S.ZZ.03	CTH ZZ	Eiler Road	1341	1516	45	1800	Present	None	0	3	1.974
68	C.ZZ.08	S.ZZ.03	CTH ZZ	Eiler Road	1833	1726	45	1800	Present	None	0	3	1.974
69	C.ZZ.10	S.ZZ.03	CTH ZZ	Eiler Road	1371	2090	45	1800	Present	None	0	1	0.658
70	C.ZZ.12	S.ZZ.03	CTH ZZ	Eiler Road	729	1617	45	1800	Present	None	0	1	0.658
71	C.ZZ.11	S.ZZ.03	CTH ZZ	Eiler Road	335	714	45	1800	None	None	0	1	0.658
72	C.ZZ.13	S.ZZ.03	CTH ZZ	Eiler Road	1207	1861	45	1800	Present	None	1	1	0.658
73	C.ZZ.14	S.ZZ.03	CTH ZZ	Eiler Road	1266	2037	45	1800	None	None	0	0	0.000
74	C.ZZ.16	S.ZZ.03	CTH ZZ	Eiler Road	1215	1965	45	1800	Present	None	0	1	0.658

Brown County - County Road Safety Plans
Rural Intersection Data Summary
November 7, 2018

Count	Intersection ID	Route Name	Local Name	Cross Street	Local Name	Intersection Design / Traffic Control	Minor Approach Speed	Major Approach Speed	Major AADT	Minor AADT	AADT Cross Product	Alignment Skew >15	Adjacent Curve	Adjacent Trip Generator	Railroad Crossing	Previous Stop (>5 miles)	Total Crashes	Total Severe Crashes	Total Severe Angle	Percent Rural Crashes
1	I.A.03	CTH A	Nicolet Dr / N New Franken Ave	State Highway 57	Sturgeon Bay Road	Traditional / Thru-Stop	45	65	11500	465	5347500	0	None	None	None	Yes	13	1	1	4.1%
2	I.B.02	CTH B	Crest Drive	CTH C	Woodside Drive	Traditional / Thru-Stop	55	35	2950	950	2802500	0	None	None	None	No	2	0	0	0.6%
3	I.B.03	CTH B	Crest Drive	CTH C	Unknown	Traditional / Thru-Stop	55	35	3450	1400	4830000	0	None	None	None	Yes	4	1	0	1.3%
4	I.BB.01	CTH BB	Copperstown Road	CTH R	North Packer Drive	Traditional / Thru-Stop	55	55	2700	1900	5130000	50	None	None	None	No	3	0	0	0.9%
5	I.C.03	CTH C	Unknown	CTH U	Kunesh Road	Traditional / Thru-Stop	35	35	1400	1100	1540000	0	None	None	None	Yes	5	0	0	1.6%
6	I.D.02	CTH D	Unknown	CTH Z	Hill Road	Traditional / Thru-Stop	55	55	1900	1100	2090000	0	None	None	None	No	5	1	1	1.6%
7	I.E.01	CTH E	Freedom Road	CTH U	S County Line Road	Traditional / Thru-Stop	55	40	3500	1900	6650000	0	Yes	None	None	No	0	0	0	0.0%
8	I.EB.01	CTH EB	Scheuring Road	CTH F	Williams Grant Drive	Traditional / All-Way Stop	45	55	8000	2150	17200000	0	None	None	None	No	2	0	0	0.6%
9	I.EB.02	CTH EB	Packerland Drive	CTH EE	Orlando Drive	Traditional / All-Way Stop	55	45	4600	3150	14490000	0	None	None	None	No	3	0	0	0.9%
10	I.EB.16	CTH EB	County Road EB	CTH M	Lineville Road	Traditional / Thru-Stop	55	35	1765	960	1694400	0	None	None	None	No	4	0	0	1.3%
11	I.EE.01	CTH EE	Orlando Drive	CTH U	S County Line Road	Traditional / Thru-Stop	55	55	2600	1500	3900000	0	None	None	None	No	9	2	2	2.8%
12	I.EE.02	CTH EE	Orlando Drive	CTH GE	S Pine Tree Road	Traditional / Thru-Stop	55	35	3450	2100	7245000	0	None	None	None	No	10	1	0	3.1%
13	I.F.01	CTH F	Williams Grant Drive	CTH S	Freedom Road	Traditional / Thru-Stop	55	45	3650	800	2920000	0	None	None	None	No	4	0	0	1.3%
14	I.G.02	CTH G	Dickinson Road	CTH Z	Park Road	Traditional / Thru-Stop	55	55	1100	635	698500	0	None	None	None	No	4	2	0	1.3%
15	I.G.03	CTH G	Dickinson Road	State Highway 96	Lark Road	Traditional / All-Way Stop	55	55	1600	1300	2080000	0	None	None	None	No	1	0	0	0.3%
16	I.G.04	CTH G	Chicago Street	State Highway 96	Shirley Road	Traditional / All-Way Stop	55	55	2100	1600	3360000	0	None	Present	None	No	4	0	0	1.3%
17	I.G.05	CTH G	Chicago Street	CTH X	CTH X	Traditional / Thru-Stop	55	55	2250	810	1822500	0	None	None	None	No	1	0	0	0.3%
18	I.G.06	CTH G	Dickinson Road	CTH MM	Dutchman Road	Traditional / Thru-Stop	55	55	3350	1500	5025000	30	Yes	None	None	No	1	0	0	0.3%
19	I.G.07	CTH G	Dickinson Road	CTH V	Line Kiln Road	Traditional / Thru-Stop	45	55	4500	1800	8100000	30	Yes	Present	None	No	11	0	0	3.5%
20	I.G.13	CTH G	Fernando Drive	CTH GE	S Pine Tree Road	Traditional / Thru-Stop	55	45	1700	1700	2890000	0	None	None	None	No	7	3	2	2.2%
21	I.JJ.05	CTH JJ	Eaton Road	CTH QQ	S Vandenberg Road	Traditional / Thru-Stop	55	55	2400	1350	3240000	0	None	None	None	No	4	1	1	1.3%
22	I.JJ.06	CTH JJ	Eaton Road	S New Franken Road	S New Franken Road	Traditional / Thru-Stop	55	55	2400	1200	2880000	0	None	None	None	No	1	0	0	0.3%
23	I.JJ.07	CTH JJ	Eaton Road	CTH P	S SugarBush Road	Traditional / Thru-Stop	55	55	1100	900	990000	0	None	None	None	No	0	0	0	0.0%
24	I.K.01	CTH K	Fischer Road	State Highway 57	Sturgeon Bay Road	Traditional / Thru-Stop	65	55	12400	450	5580000	0	None	None	None	No	6	0	0	1.9%
25	I.K.02	CTH K	Champion Road	State Highway 57	Sturgeon Bay Road	Traditional / Thru-Stop	65	45	12700	1500	19050000	20	None	Present	None	Yes	17	2	2	5.3%
26	I.K.03	CTH K	Champion Road	N New Franken Road	N New Frnaken Road	Traditional / Thru-Stop	55	55	1120	590	660800	0	None	None	None	No	8	1	0	2.5%
27	I.K.04	CTH K	Champion Road	CTH P	N Sugarbush Road	Traditional / Thru-Stop	45	55	1100	1100	1210000	0	None	None	None	No	2	0	0	0.6%
28	I.K.05	CTH K	Champion Road	CTH P	N Sugarbush Road	Traditional / Thru-Stop	55	45	1200	1100	1320000	0	None	None	None	No	3	0	0	0.9%
29	I.KB.01	CTH KB	Shirley Road	U.S. Highway 43 Ramps	U.S. Highway 43 Ramps	Traditional / Thru-Stop	35	70	1625	4350	7068750	35	None	None	None	No	6	0	0	1.9%
30	I.KB.05	CTH KB	CTH KB	CTH P	CTH P	Traditional / Thru-Stop	55	55	1350	380	513000	0	Yes	None	None	No	1	0	0	0.3%
31	I.KB.06	CTH KB	CTH KB	CTH P	CTH P	Traditional / Thru-Stop	55	55	1200	890	1068000	40	Yes	None	None	Yes	7	0	0	2.2%
32	I.MM.01	CTH MM	Elm View Road	Interstate 43 Ramps	Interstate 43 Ramps	Traditional / Thru-Stop	55	70	1970	4800	9456000	30	None	None	None	No	8	0	0	2.5%
33	I.N.01	CTH N	Humboldt Road	CTH QQ	S Vandenberg Road	Traditional / Thru-Stop	55	45	1350	700	945000	0	Yes	None	None	No	2	0	0	0.6%
34	I.N.02	CTH N	Humboldt Road	S New Franken Road	S New Franken Road	Traditional / All-Way Stop	55	55	1500	1230	1845000	0	None	None	None	No	0	0	0	0.0%
35	I.N.03	CTH N	Humboldt Road	CTH P	S SugarBush Road	Traditional / All-Way Stop	55	55	1350	980	1323000	0	None	None	None	No	2	0	0	0.6%
36	I.NN.01	CTH NN	CTH NN	CTH Z	Park Road	Traditional / All-Way Stop	55	55	720	1025	738000	0	None	None	None	No	1	0	0	0.3%
37	I.NN.02	CTH NN	CTH NN	State Highway 96	Shirley Road	Traditional / Thru-Stop	55	55	1800	1015	1827000	0	None	None	None	No	4	0	0	1.3%
38	I.NN.03	CTH NN	CTH NN	CTH X	Depere Road	Traditional / All-Way Stop	55	55	2000	1100	2200000	35	None	None	None	No	1	0	0	0.3%
39	I.NN.04	CTH NN	Stagecoach Road	CTH R	Main Street	Traditional / Thru-Stop	55	55	4700	930	4371000	25	Yes	None	None	No	3	0	0	0.9%
40	I.OO.01	CTH OO	CTH OO	CTH W	E River Road	Traditional / Thru-Stop	55	55	810	665	538650	0	None	None	None	No	0	0	0	0.0%
41	I.OO.02	CTH OO	CTH OO	CTH X	CTH X	Traditional / Thru-Stop	55	55	760	540	410400	0	Yes	None	None	No	2	0	0	0.6%
42	I.P.01	CTH P	CTH P	CTH R	CTH R	Traditional / Thru-Stop	55	55	2700	380	1026000	0	None	None	None	No	2	0	0	0.6%
43	I.P.02	CTH P	CTH P	State Highway 29	Kewaunee Road	Traditional / Thru-Stop	55	55	5150	1050	5407500	0	None	Present	None	No	7	2	2	2.2%
44	I.P.03	CTH P	S Sugarbush Road	Finger Road	Finger Road	Traditional / Thru-Stop	55	55	1250	750	937500	0	None	None	None	No	3	0	0	0.9%
45	I.P.04	CTH P	N Sugarbush Road	State Highway 54	Algoma Road	Traditional / Thru-Stop	55	55	6900	1200	8280000	0	None	None	None	No	9	3	2	2.8%
46	I.P.05	CTH P	N Sugarbush Road	CTH SS	CTH SS	Traditional / Thru-Stop	45	45	1200	750	900000	0	None	None	None	No	0	0	0	0.0%
47	I.P.06	CTH P	N Sugarbush Road	State Highway 57 Ramps	State Highway 57 Ramps	Traditional / Thru-Stop	45	65	545	1500	817500	0	Yes	None	None	Yes	0	0	0	0.0%
48	I.PP.01	CTH PP	CTH PP	CTH Z	Hill Road	Traditional / All-Way Stop	55	55	1800	910	1638000	0	None	None	None	No	0	0	0	0.0%
49	I.PP.02	CTH PP	CTH PP	State Highway 96	Day Street	Traditional / Thru-Stop	55	55	3500	1800	6300000	0	None	None	None	No	5	0	0	1.6%
50	I.PP.03	CTH PP	CTH PP	State Highway 96	Day Street	Traditional / Thru-Stop	55	55	3100	1500	4650000	0	None	None	None	Yes	1	0	0	0.3%
51	I.PP.04	CTH PP	CTH PP	CTH W	E River Road	Traditional / Thru-Stop	55	55	2950	540	1593000	30	None	None	None	No	2	0	0	0.6%
52	I.QQ.01	CTH QQ	S Vandenberg Road	State Highway 29	Kewaunee Road	Traditional / Thru-Stop	55	55	5800	713	4132500	0	None	None	None	No	0	0	0	0.0%
53	I.QQ.02	CTH QQ	S Vandenberg Road	CTH V	Finger Road	Traditional / All-Way Stop	55	55	2500	1350	3375000	0	None	None	None	No	1	0	0	0.3%
54	I.R.01	CTH R	N Packer Drive	CTH T	Maribel Road	Traditional / Thru-Stop	45	55	3250	1200	3900000	30	None	None	None	No	5	0	0	1.6%
55	I.R.02	CTH R	CTH R	CTH T	Wisconsin Avenue	Traditional / Thru-Stop	35	45	3450	1300	4485000	0	Yes	None	None	No	1	0	0	0.3%
56	I.R.03	CTH R	Main Street	CTH MM	Elm View Road	Traditional / Thru-Stop	55	55	6150	7100	43665000	50	None	None	None	No	20	2	2	6.3%
57	I.S.01	CTH S	Freedom Road	U.S. Highway 41 Ramps	U.S. Highway 41 Ramps	Traditional / Thru-Stop	45	70	1900	4000	7600000	25	None	None	None	Yes	6	0	0	1.9%
58	I.S.02	CTH S	Freedom Road	U.S. Highway 41 Ramps	U.S. Highway 41 Ramps	Traditional / Thru-Stop	45	70	1560	4000	6240000	30	None	None	None	Yes	6	0	0	1.9%
59	I.T.01	CTH T	S New Franken Road	State Highway 29	Kewaunee Road	Traditional / Thru-Stop	55	45	5750	1250	7187500	0	None	Present	None	No	3	0	0	0.9%
60	I.T.02	CTH T	S New Franken Road	Finger Road	Finger Road	Traditional / All-Way Stop	55	55	1675	1500	2512500	0	None	None	None	No	1	0	0	0.3%
61	I.T.03	CTH T	N New Franken Road	State Highway 54	Algoma Road	Traditional / Thru-Stop	55	45	7150	1650	11797500	0	None	Present	None	No	14	2	2	4.4%
62	I.U.03	CTH U	N County Line Road	CTH VV	Triangle Drive	Traditional / Thru-Stop	55	55	2800	1800	5040000	0	None	None	None	No	9	0	0	2.8%
63	I.U.04	CTH U	N County Line Road	State Highway 32	State Highway 32	3-4 / Thru-Stop	45	65	19800	1855	36729000	40	None	None	None	No	9	0	0	2.8%
64	I.W.01	CTH W	CTH W	CTH Z	CTH Z	Traditional / Thru-Stop	55	55	755	470	354850	20	None	None	None	No	3	1	1	0.9%
65	I.W.02	CTH W	Hill Road	CTH Z	Park Road	Traditional / Thru-Stop	55	55	955	550	525250	0	Yes	None	None	No	4	0	0	1.3%

Brown County - County Road Safety Plans
Rural Intersection Data Summary
November 7, 2018

Count	Intersection ID	Route Name	Local Name	Cross Street	Local Name	Intersection Design / Traffic Control	Minor Approach Speed	Major Approach Speed	Major AADT	Minor AADT	AADT Cross Product	Alignment Skew >15	Adjacent Curve	Adjacent Trip Generator	Railroad Crossing	Previous Stop (>5 miles)	Total Crashes	Total Severe Crashes	Total Severe Angle	Percent Rural Crashes
66	I.X.01	CTH X	Depere Road	State Highway 96	Shirley Road	Traditional / Thru-Stop	55	55	1800	700	1260000	0	Yes	None	None	No	1	0	0	0.3%
67	I.X.03	CTH X	Heritage Road	Swan Road	Swan Road	Traditional / Thru-Stop	25	45	7100	3900	27690000	0	Yes	None	None	No	6	0	0	1.9%
68	I.Y.01	CTH Y	CTH Y	Old Wisconsin 29	Old Wisconsin 29	Traditional / Thru-Stop	45	55	1180	0	0	0	None	None	None	No	4	0	0	1.3%
69	I.Z.01	CTH Z	Hill Road	State Highway 32	Greenleaf Road	Traditional / Thru-Stop	55	55	3950	1105	4364750	20	None	None	None	No	10	1	1	3.1%
70	I.ZZ.01	CTH ZZ	Eiler Road	State Highway 32	Greenleaf Road	Traditional / Thru-Stop	55	55	5500	1150	6325000	0	None	None	None	Yes	2	0	0	0.6%
71	I.IL.01	CTH IL	Mill Road	State Highway 57	State Highway 57	Traditional / Thru-Stop	55	55	4100	500	2050000	0	None	None	None	No	4	1	1	1.3%
72	I.VV.01	CTH VV	Triangle Drive	State Highway 29	Highway 29	3-4 / Thru-Stop	55	65	24350	1400	34090000	0	Yes	Present	None	No	8	0	0	2.5%
73	I.D.01	CTH D	CTH D	CTH KK	Man Cal Road	Traditional / Thru-Stop	55	55	4200	2400	10080000	0	None	Present	None	No	1	1	1	0.3%

Appendix D – List of Prioritized Segments, Curves and Intersections

Brown County - County Road Safety Plans

Rural 2-Lane Segment Prioritization

October 30, 2018

Rank	Segment ID	Route Name	Local Name	From	To	Length	AADT	ADT Range	Access Density	Lane Departure Crash Density	Critical Radius Curve Density	Edge Risk Assessment	Shoulder Width	Total
1	S.ZZ.03	CTH ZZ	Eiler Road	Unknown	Greenleaf Road	5.1	1800	✓		✓	✓	✓	✓	✓✓✓✓✓
2	S.D.03	CTH D	CTH D	CTH CE	High Street	5.0	1900	✓	✓	✓	✓	✓		✓✓✓✓✓
3	S.JJ.04	CTH JJ	Eaton Road	South Huron Road	South Sugar Bush Road	6.9	2400		✓		✓	✓	✓	✓✓✓✓
4	S.V.05	CTH V	Finger Road	Erie Road	South Sugar Bush Road	6.1	2841		✓	✓	✓	✓		✓✓✓✓
5	S.CE.01	CTH CE		Outagamie Road	CTH D	1.0	2000	✓	✓		✓	✓		✓✓✓✓
6	S.U.01	CTH U	South County Line Road	Orlando Drive	Freedom Road	2.8	1500	✓	✓		✓	✓		✓✓✓✓
7	S.QQ.01	CTH QQ	South Vandenberg Road	Kewaunee Road	Humboldt Road	4.0	1350	✓	✓			✓	✓	✓✓✓✓
8	S.J.06	CTH J	North Lakeview Drive	Sunset Beach Road	Brown Road	3.0	660	✓		✓		✓	✓	✓✓✓✓
9	S.NN.02	CTH NN	CTH NN	Main Street	Depere Road	4.5	930	✓			✓	✓	✓	✓✓✓✓
10	S.W.07	CTH W	East River Road	CTH W	CTH PP	2.9	540	✓			✓	✓	✓	✓✓✓✓
11	S.Y.01	CTH Y	CTH Y	Shady Drive	Old Wisconsin 29	1.4	760	✓		✓	✓		✓	✓✓✓✓
12	S.OO.01	CTH OO	CTH OO	Tower Road	Ridgeview Road	1.6	540	✓	✓			✓	✓	✓✓✓✓
13	S.T.01	CTH T	Maribel Road	Cooperstown Road	CTH R	0.6	1200	✓	✓			✓	✓	✓✓✓✓
14	S.U.05	CTH U	County Line Road	Glendale Avenue	Kunesh Road	2.0	910	✓	✓			✓	✓	✓✓✓✓
15	S.P.03	CTH P	North CTH P	Humboldt Road	CTH K	7.0	2020			✓		✓	✓	✓✓✓
16	S.X.01	CTH X	CTH X	CTH NN	State Highway 96	10.1	2096			✓	✓	✓		✓✓✓
17	S.KB.03	CTH KB	CTH KB	Wisconsin Avenue	CTH P	1.6	2351		✓		✓	✓		✓✓✓
18	S.R.04	CTH R	Main Street	Stagecoach Road	Shadow Lane	0.5	4600		✓	✓		✓		✓✓✓
19	S.KB.04	CTH KB	CTH KB	CTH P	Irish Road	1.8	1701	✓		✓	✓			✓✓✓
20	S.P.01	CTH P	CTH P	North Packer Drive	CTH KB	1.2	380			✓		✓	✓	✓✓✓
21	S.PP.01	CTH PP	CTH PP	North County Line Road	Day Street	5.1	1800	✓		✓		✓		✓✓✓
22	S.G.02	CTH G	Dickinson Road	CTH W	State Highway 96	4.2	1751	✓	✓			✓		✓✓✓
23	S.K.01	CTH K	Fischer Road	Nicolet Drive	State Highay 57	1.0	450		✓		✓	✓		✓✓✓
24	S.T.06	CTH T	South New Franken Road	Eaton Road	Humboldt Road	4.9	1500	✓	✓			✓		✓✓✓
25	S.IL.02	CTH IL	Mill Road	Old 57 Road	State Highway 57	0.6	500	✓		✓		✓		✓✓✓
26	S.P.02	CTH P	CTH P	CTH KB	Finger Road	9.1	1494	✓				✓	✓	✓✓✓
27	S.T.04	CTH T	South New Franken Road/South Country Road T	North Avenue	Kewaunee Road	6.4	1300	✓				✓	✓	✓✓✓
28	S.W.01	CTH W	CTH W	Holland Town Road	Kings Road	1.4	900	✓		✓	✓			✓✓✓
29	S.W.06	CTH W	CTH W	Unknown	CTH OO	5.2	790	✓				✓	✓	✓✓✓
30	S.Z.01	CTH Z	CTH Z	Outagamie Road	CTH W	11.2	1348	✓		✓		✓		✓✓✓
31	S.IL.01	CTH IL	Mill Road	Unknown	Old 57 Road	0.6	500	✓				✓	✓	✓✓✓
32	S.IR.01	CTH IR	Reforestation Road	School Lane	Unknown	1.8	820	✓	✓			✓		✓✓✓
33	S.IV.01	CTH IV	Finger Road	South Sugar Bush Road	South Degrand Road	0.9	750	✓	✓			✓		✓✓✓
34	S.K.02	CTH K	Champion Road	State Highway 57	County Line Road	6.4	1391	✓	✓			✓		✓✓✓
35	S.SS.01	CTH SS	CTH SS	North Sugarbush Road	County Line Road	1.0	500	✓	✓				✓	✓✓✓
36	S.T.08	CTH T	North New Franken Road	Algoma Road	State Highway 57	5.6	1075	✓	✓			✓		✓✓✓
37	S.W.05	CTH W	CTH W	Mill Road	Unknown	0.8	1300	✓	✓			✓		✓✓✓
38	S.MM.01	CTH MM	Dutchman Road	Dickinson Road	Interstate 43	3.0	2500			✓		✓		✓✓
39	S.GE.01	CTH GE	South Pine Tree Road	Orlando Drive	State Highway 54	4.6	2280		✓	✓				✓✓
40	S.N.02	CTH N	Humboldt Road	North Grandview Road	South Degrand Road	6.9	2340		✓			✓		✓✓
41	S.PP.03	CTH PP	CTH PP	School Road	Rockland Road	5.2	5300		✓			✓		✓✓
42	S.DD.02	CTH DD	Broadway Street	South County Line road	Steffins Curve	0.5	5250		✓	✓				✓✓
43	S.G.11	CTH G	Fernando Drive	South Pine Tree Road	Packerland Drive	1.4	1700	✓				✓		✓✓
44	S.PP.02	CTH PP	CTH PP	Day Street	School Road	2.2	1500	✓				✓		✓✓
45	S.VV.01	CTH VV	Triangle Drive	North County Line Road	North Overland Road	1.2	1800	✓				✓		✓✓
46	S.C.05	CTH C	CTH C	N Brown County Line Road	CTH B	2.0	1400	✓				✓		✓✓
47	S.DDD.01	CTH DDD	Steffins Curve	Broadway Street	French Road	1.9	500	✓				✓		✓✓
48	S.NN.01	CTH NN	CTH NN	Park Road	Depere Road	5.4	1100	✓				✓		✓✓
49	S.Z.02	CTH Z	Park Road	Hill Road	CTH NN	4.5	886	✓				✓		✓✓
50	S.BB.01	CTH BB	W County Coad BB	CTH R	Irish Road	1.2	1300	✓		✓				✓✓
51	S.W.04	CTH W	CTH W	Park Road	Mill Road	1.1	1100	✓	✓					✓✓
52	S.R.01	CTH R	CTH R	Cooperstown Road	Depere Road	2.7	5714					✓		✓
53	S.U.03	CTH U	North County Line Road	Riverdale Drive	State Highway 29	5.6	4540					✓		✓
54	S.B.03	CTH B	School Lane	Pittco Road	Velp Avenue	4.1	9351		✓					✓

Brown County - County Road Safety Plans
Rural 2-Lane Segment Prioritization
October 30, 2018

Rank	Segment ID	Route Name	Local Name	From	To	Length	AADT	ADT Range	Access Density	Lane Departure Crash Density	Critical Radius Curve Density	Edge Risk Assessment	Shoulder Width	Total
55	S.R.05	CTH R	Main Street	Shadow Lane	Elm View Road	1.0	4700			✓				✓
56	S.S.01	CTH S	County Road S	South County Line road	Freedom Road	1.3	6970		✓					✓
57	S.S.02	CTH S	Freedom Road	County Road S	Lawrence Drive	0.2	5800			✓				✓
58	S.R.03	CTH R	CTH R	Stagecoach Road	North Avenue	5.5	5200			✓				✓
59	S.W.03	CTH W	Hill Road	Unknown	Park Road	2.3	700	✓						✓
60	S.U.04	CTH U	County Line Road	State Highway 32	Glendale Avenue	0.2	910	✓						✓
61	S.B.01	CTH B	Crest Drive	South St. Augustine Street	State Highway 32	1.0	2300							
62	S.G.03	CTH G	Chicago Street	State Highway 96	Lime Kiln Road	4.8	2200							
63	S.KK.01	KK	Man Cal Road	Unknown	CTH D	1.0	4200							
								40	27	21	14	45	17	

	Check Marks
ADT Range -	If segment has an ADT in the range most at risk (500 < ADT < 2000)
Access Density -	If segment has an Access Density in the range most at risk (15 < X < 100)
Lane Departure Crash Density	If segment has an Lane Departure Crash Density in the range most at risk (0.4 < X < 100)
Critical Radius Curve Density	If segment has an Critical Radius Curve Density in the range most at risk (0.13 < X < 100)
Edge Risk Assessment -	If Segment has an Edge Risk of 2C, 2S or 3
Shoulder Width -	If Segment has a Shoulder Width less than or equal to 3 feet

	#	%	Mileage	%
✓✓✓✓✓✓	0	0%	0.0	0%
✓✓✓✓✓	2	3%	10.1	5%
✓✓✓✓	12	19%	36.7	18%
✓✓✓	23	37%	88.3	43%
✓✓	14	22%	40.9	20%
✓	9	14%	22.8	11%
	3	5%	6.8	3%
Total	63	100%	205.6	100%

Brown County - County Road Safety Plans
Rural Curve Prioritization
October 30, 2018

Curve ID	Segment ID	Route Name	Local Name	Length	Radius	Speed Limit	Shoulder Type	Critical Radius	Existing Chevrons?	AADT	Adjacent Intersection	Visual Trap	Total Severe Crashes	Total	Priority (black) or Proximity (red)?
C.B.03	S.B.03	CTH B	School Lane	1780	2634	45	Composite			✓	✓			✓✓	✓
C.B.04	S.B.03	CTH B	School Lane	1853	2374	45	Composite			✓	✓		✓	✓✓✓	✓
C.D.03	S.D.03	CTH D	CTH D	1095	1045	55	Composite	✓		✓			✓	✓✓✓	✓
C.D.04	S.D.03	CTH D	CTH D	1352	2159	55	Composite			✓		✓		✓✓	✓
C.D.05	S.D.03	CTH D	CTH D	1344	2886	55	Composite			✓	✓			✓✓	
C.DDD.01	S.DDD.01	CTH DDD	Steffins Curve	1338	1333	55	Gravel				✓			✓	
C.DDD.02	S.DDD.01	CTH DDD	Steffins Curve	1314	2327	55	Gravel								
C.G.05	S.G.03	CTH G	Chicago Street	1439	2299	55	Gravel			✓	✓			✓✓	
C.J.13	S.J.06	CTH J	North Lakeview Drive	703	1217	45	Gravel	✓					✓	✓✓	
C.J.14	S.J.06	CTH J	North Lakeview Drive	786	2446	45	Gravel				✓			✓	
C.JJ.06	S.JJ.04	CTH JJ	Eaton Road	912	547	55	Gravel	✓		✓	✓	✓		✓✓✓✓	✓
C.JJ.07	S.JJ.04	CTH JJ	Eaton Road	1095	632	55	Gravel	✓		✓	✓	✓		✓✓✓✓	✓
C.K.01	S.K.01	CTH K	Fischer Road	391	562	55	Composite	✓			✓	✓		✓✓✓	✓
C.K.02	S.K.02	CTH K	Champion Road	807	406	55	Composite	✓	✓	✓	✓	✓		✓✓✓✓	✓
C.K.03	S.K.02	CTH K	Champion Road	504	295	55	Composite	✓	✓	✓	✓	✓		✓✓✓✓	✓
C.KB.05	S.KB.03	CTH KB	CTH KB	849	2416	45	Composite			✓	✓			✓✓	
C.KB.06	S.KB.03	CTH KB	CTH KB	1130	804	45	Composite	✓	✓	✓	✓	✓		✓✓✓✓	✓
C.KB.07	S.KB.04	CTH KB	CTH KB	1344	844	55	Composite	✓	✓	✓	✓			✓✓✓	✓
C.MM.01	S.MM.01	CTH MM	Dutchman Road	331	224	55	Composite			✓	✓	✓		✓✓✓	✓
C.MM.02	S.MM.01	CTH MM	Dutchman Road	738	408	55	Composite	✓		✓	✓			✓✓✓	✓
C.N.01	S.N.02	CTH N	Humboldt Road	2666	2282	45	Composite			✓	✓			✓✓	
C.N.02	S.N.02	CTH N	Humboldt Road	1604	1380	45	Composite			✓	✓			✓✓	
C.NN.01	S.NN.02	CTH NN	CTH NN	820	1198	55	Gravel	✓		✓	✓	✓		✓✓✓✓	✓
C.NN.03	S.NN.02	CTH NN	CTH NN	216	218	55	Gravel			✓	✓			✓✓	
C.P.03	S.P.01	CTH P	CTH P	453	461	55	Gravel	✓						✓	
C.P.04	S.P.02	CTH P	CTH P	889	1869	55	Gravel			✓	✓			✓✓	
C.PP.01	S.PP.01	CTH PP	CTH PP	1944	2332	55	Composite			✓				✓	
C.PP.02	S.PP.03	CTH PP	CTH PP	1432	1688	55	Gravel			✓	✓			✓✓	
C.PP.03	S.PP.03	CTH PP	CTH PP	1810	2122	55	Gravel			✓	✓			✓✓	
C.T.04	S.T.04	CTH T	South New Franken Road/South Country Road T	541	337	55	Gravel	✓		✓		✓		✓✓✓	✓
C.T.05	S.T.04	CTH T	South New Franken Road/South Country Road T	506	318	55	Gravel	✓		✓				✓✓	✓
C.T.06	S.T.04	CTH T	South New Franken Road/South Country Road T	557	405	55	Gravel	✓		✓	✓	✓		✓✓✓✓	✓
C.T.07	S.T.04	CTH T	South New Franken Road/South Country Road T	578	409	55	Gravel	✓		✓	✓	✓		✓✓✓✓	✓
C.T.08	S.T.08	CTH T	North New Franken Road	200	227	55	Composite			✓	✓	✓		✓✓✓	✓
C.U.01	S.U.01	CTH U	South County Line Road	917	538	55	Paved	✓		✓				✓✓	
C.U.04	S.U.04	CTH U	County Line Road	593	1521	45	Gravel			✓	✓			✓✓	
C.V.10	S.V.05	CTH V	Finger Road	792	1030	55	Composite	✓		✓				✓✓	✓
C.V.11	S.V.05	CTH V	Finger Road	809	985	55	Composite	✓		✓				✓✓	✓
C.V.12	S.V.05	CTH V	Finger Road	780	853	55	Composite	✓		✓	✓			✓✓✓	✓
C.V.13	S.V.05	CTH V	Finger Road	791	873	55	Composite	✓		✓	✓			✓✓✓	✓
C.VV.01	S.VV.01	CTH VV	Triangle Drive	864	1449	55	Composite			✓	✓			✓✓	
C.VV.02	S.VV.01	CTH VV	Triangle Drive	311	222	55	Composite			✓	✓			✓✓	
C.W.01	S.W.01	CTH W	CTH W	1895	1122	55	Gravel	✓		✓	✓	✓	✓	✓✓✓✓✓	✓
C.W.07	S.W.03	CTH W	Hill Road	1179	2059	55	Gravel				✓			✓	
C.W.08	S.W.04	CTH W	CTH W	1187	2156	55	Gravel			✓				✓	
C.W.10	S.W.06	CTH W	CTH W	1359	2380	55	Gravel			✓	✓			✓✓	✓
C.W.11	S.W.06	CTH W	CTH W	719	469	55	Gravel	✓		✓	✓			✓✓✓	✓

Brown County - County Road Safety Plans
Rural Curve Prioritization
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Curve ID	Segment ID	Route Name	Local Name	Length	Radius	Speed Limit	Shoulder Type	Critical Radius	Existing Chevrons?	AADT	Adjacent Intersection	Visual Trap	Total Severe Crashes	Total	Priority (black) or Proximity (red)?
C.W.12	S.W.07	CTH W	East River Road	582	281	55	Gravel	✓			✓	✓		✓✓✓	✓
C.W.13	S.W.07	CTH W	East River Road	851	793	55	Gravel	✓			✓	✓		✓✓✓	✓
C.W.15	S.W.07	CTH W	East River Road	636	1213	55	Gravel	✓			✓			✓✓	
C.X.01	S.X.01	CTH X	CTH X	291	210	55	Composite			✓	✓			✓✓	
C.X.02	S.X.01	CTH X	CTH X	811	1199	55	Composite	✓		✓	✓			✓✓✓	✓
C.X.03	S.X.01	CTH X	CTH X	886	455	55	Composite	✓		✓	✓	✓		✓✓✓✓	✓
C.X.04	S.X.01	CTH X	CTH X	1136	888	55	Composite	✓		✓	✓	✓		✓✓✓✓	✓
C.X.05	S.X.01	CTH X	CTH X	983	2487	55	Composite			✓				✓	✓
C.X.06	S.X.01	CTH X	CTH X	883	766	55	Composite	✓		✓	✓	✓		✓✓✓✓	✓
C.X.07	S.X.01	CTH X	CTH X	595	448	55	Composite	✓		✓	✓	✓		✓✓✓✓	✓
C.X.08	S.X.01	CTH X	CTH X	944	2635	55	Composite			✓	✓			✓✓	
C.X.09	S.X.01	CTH X	CTH X	719	1621	55	Composite			✓				✓	
C.X.10	S.X.01	CTH X	CTH X	798	854	55	Composite	✓		✓			✓	✓✓✓	✓
C.X.11	S.X.01	CTH X	CTH X	930	1323	55	Composite			✓				✓	✓
C.Y.01	S.Y.01	CTH Y	CTH Y	927	586	55	Gravel	✓	✓	✓				✓✓	✓
C.Z.01	S.Z.01	CTH Z	CTH Z	336	472	55	Composite	✓	✓	✓	✓	✓	✓	✓✓✓✓	✓
C.ZZ.06	S.ZZ.03	CTH ZZ	Eiler Road	810	672	45	Gravel	✓		✓	✓			✓✓✓	✓
C.ZZ.07	S.ZZ.03	CTH ZZ	Eiler Road	1341	1516	45	Gravel			✓	✓			✓✓	✓
C.ZZ.08	S.ZZ.03	CTH ZZ	Eiler Road	1833	1726	45	Gravel			✓	✓			✓✓	✓
C.ZZ.10	S.ZZ.03	CTH ZZ	Eiler Road	1371	2090	45	Gravel			✓	✓			✓✓	✓
C.ZZ.11	S.ZZ.03	CTH ZZ	Eiler Road	335	714	45	Gravel	✓		✓				✓✓	✓
C.ZZ.12	S.ZZ.03	CTH ZZ	Eiler Road	729	1617	45	Gravel			✓	✓			✓✓	✓
C.ZZ.13	S.ZZ.03	CTH ZZ	Eiler Road	1207	1861	45	Gravel			✓	✓		✓	✓✓✓	✓
C.ZZ.14	S.ZZ.03	CTH ZZ	Eiler Road	1266	2037	45	Gravel			✓				✓	✓
C.ZZ.16	S.ZZ.03	CTH ZZ	Eiler Road	1215	1965	45	Gravel			✓	✓			✓✓	✓
								36	6	62	53	21	7		

Check Marks

ADT Range - If segment has an ADT in the range most at risk (250 < ADT < 1250)
Alignment Skew - If alignment skew is greater than 15
Adjacent Curve - if intersection is in/at a curve
Adjacent Trip Generator - If an Adjacent Trip Generator is Present
Railroad crossing - If intersection is near/at Rail Road Crossing
Previous Stop (>5 miles) If previous stop is more than 5 miles away

Brown County - County Road Safety Plans
Rural Intersection Prioritization
November 7, 2018

Rank	Intersection ID	Route Name	Local Name	Cross Street	Local Name	Cross Product AADT	AADT Cross Product	Alignment Skew >15	Adjacent Curve	Adjacent Trip Generator	Railroad Crossing	Previous Stop (>5 miles)	Total Severe Crashes	Total
1	I.K.02	CTH K	Champion Road	State Highway 57	Sturgeon Bay Road	19050000	✓	✓		✓		✓	✓	✓✓✓✓
2	I.G.07	CTH G	Dickinson Road	CTH V	Line Kiln Road	8100000	✓	✓	✓	✓				✓✓✓✓
3	I.A.03	CTH A	Nicolet Dr / N New Franken Ave	State Highway 57	Sturgeon Bay Road	5347500	✓					✓	✓	✓✓✓
4	I.P.02	CTH P	CTH P	State Highway 29	Kewaunee Road	5407500	✓			✓			✓	✓✓✓
5	I.R.03	CTH R	Main Street	CTH MM	Elm View Road	43665000	✓	✓					✓	✓✓✓
6	I.T.03	CTH T	N New Franken Road	State Highway 54	Algoma Road	11797500	✓			✓			✓	✓✓✓
7	I.B.03	CTH B	Crest Drive	CTH C	Unknown	4830000	✓					✓	✓	✓✓✓
8	I.Z.01	CTH Z	Hill Road	State Highway 32	Greenleaf Road	4364750	✓	✓					✓	✓✓✓
9	I.D.01	CTH D	CTH D	CTH KK	Man Cal Road	10080000	✓			✓			✓	✓✓✓
10	I.VV.01	CTH VV	Triangle Drive	State Highway 29	Highway 29	34090000	✓		✓	✓				✓✓✓
11	I.KB.06	CTH KB	CTH KB	CTH P	CTH P	1068000		✓	✓			✓		✓✓✓
12	I.G.06	CTH G	Dickinson Road	CTH MM	Dutchman Road	5025000	✓	✓	✓					✓✓✓
13	I.S.01	CTH S	Freedom Road	U.S. Highway 41 Ramps	U.S. Highway 41 Ramps	7600000	✓	✓				✓		✓✓✓
14	I.S.02	CTH S	Freedom Road	U.S. Highway 41 Ramps	U.S. Highway 41 Ramps	6240000	✓	✓				✓		✓✓✓
15	I.NN.04	CTH NN	Stagecoach Road	CTH R	Main Street	4371000	✓	✓	✓					✓✓✓
16	I.W.01	CTH W	CTH W	CTH Z	CTH Z	354850		✓					✓	✓✓
17	I.EE.02	CTH EE	Orlando Drive	CTH GE	S Pine Tree Road	7245000	✓						✓	✓✓
18	I.P.04	CTH P	N Sugarbush Road	State Highway 54	Algoma Road	8280000	✓						✓	✓✓
19	I.D.02	CTH D	Unknown	CTH Z	Hill Road	2090000	✓						✓	✓✓
20	I.G.13	CTH G	Fernando Drive	CTH GE	S Pine Tree Road	2890000	✓						✓	✓✓
21	I.EE.01	CTH EE	Orlando Drive	CTH U	S County Line Road	3900000	✓						✓	✓✓
22	I.JJ.05	CTH JJ	Eaton Road	CTH QQ	S Vandenberg Road	3240000	✓						✓	✓✓
23	I.IL.01	CTH IL	Mill Road	State Highway 57	State Highway 57	2050000	✓						✓	✓✓
24	I.ZZ.01	CTH ZZ	Eiler Road	State Highway 32	Greenleaf Road	6325000	✓					✓		✓✓
25	I.P.06	CTH P	N Sugarbush Road	State Highway 57 Ramps	State Highway 57 Ramps	817500			✓			✓		✓✓
26	I.BB.01	CTH BB	Copperstown Road	CTH R	North Packer Drive	5130000	✓	✓						✓✓
27	I.E.01	CTH E	Freedom Road	CTH U	S County Line Road	6650000	✓		✓					✓✓
28	I.KB.01	CTH KB	Shirley Road	U.S. Highway 43 Ramps	U.S. Highway 43 Ramps	7068750	✓	✓						✓✓
29	I.MM.01	CTH MM	Elm View Road	Interstate 43 Ramps	Interstate 43 Ramps	9456000	✓	✓						✓✓
30	I.T.01	CTH T	S New Franken Road	State Highway 29	Kewaunee Road	7187500	✓			✓				✓✓
31	I.U.04	CTH U	N County Line Road	State Highway 32	State Highway 32	36729000	✓	✓						✓✓
32	I.X.03	CTH X	Heritage Road	Swan Road	Swan Road	27690000	✓		✓					✓✓
33	I.G.04	CTH G	Chicago Street	State Highway 96	Shirley Road	3360000	✓			✓				✓✓
34	I.NN.03	CTH NN	CTH NN	CTH X	Depere Road	2200000	✓	✓						✓✓
35	I.PP.03	CTH PP	CTH PP	State Highway 96	Day Street	4650000	✓					✓		✓✓
36	I.R.01	CTH R	N Packer Drive	CTH T	Maribel Road	3900000	✓	✓						✓✓
37	I.R.02	CTH R	CTH R	CTH T	Wisconsin Avenue	4485000	✓		✓					✓✓
38	I.G.02	CTH G	Dickinson Road	CTH Z	Park Road	698500							✓	✓
39	I.K.03	CTH K	Champion Road	N New Franken Road	N New Frnaken Road	660800							✓	✓
40	I.C.03	CTH C	Unknown	CTH U	Kunesh Road	1540000						✓		✓
41	I.KB.05	CTH KB	CTH KB	CTH P	CTH P	513000			✓					✓
42	I.PP.04	CTH PP	CTH PP	CTH W	E River Road	1593000		✓						✓
43	I.W.02	CTH W	Hill Road	CTH Z	Park Road	525250			✓					✓
44	I.N.01	CTH N	Humboldt Road	CTH QQ	S Vandenberg Road	945000			✓					✓
45	I.X.01	CTH X	Depere Road	State Highway 96	Shirley Road	1260000			✓					✓
46	I.OO.02	CTH OO	CTH OO	CTH X	CTH X	410400			✓					✓
47	I.EB.01	CTH EB	Scheuring Road	CTH F	Williams Grant Drive	17200000	✓							✓
48	I.EB.02	CTH EB	Packerland Drive	CTH EE	Orlando Drive	14490000	✓							✓
49	I.K.01	CTH K	Fischer Road	State Highway 57	Sturgeon Bay Road	5580000	✓							✓
50	I.PP.02	CTH PP	CTH PP	State Highway 96	Day Street	6300000	✓							✓
51	I.U.03	CTH U	N County Line Road	CTH VV	Triangle Drive	5040000	✓							✓
52	I.B.02	CTH B	Crest Drive	CTH C	Woodside Drive	2802500	✓							✓
53	I.F.01	CTH F	Williams Grant Drive	CTH S	Freedom Road	2920000	✓							✓
54	I.G.03	CTH G	Dickinson Road	State Highway 96	Lark Road	2080000	✓							✓
55	I.JJ.06	CTH JJ	Eaton Road	S New Franken Road	S New Franken Road	2880000	✓							✓
56	I.T.02	CTH T	S New Franken Road	Finger Road	Finger Road	2512500	✓							✓
57	I.QQ.01	CTH QQ	S Vandenberg Road	State Highway 29	Kewaunee Road	4132500	✓							✓
58	I.QQ.02	CTH QQ	S Vandenberg Road	CTH V	Finger Road	3375000	✓							✓
59	I.Y.01	CTH Y	CTH Y	Old Wisconsin 29	Old Wisconsin 29	0								
60	I.EB.16	CTH EB	County Road EB	CTH M	Lineville Road	1694400								
61	I.G.05	CTH G	Chicago Street	CTH X	CTH X	1822500								
62	I.K.04	CTH K	Champion Road	CTH P	N Sugarbush Road	1210000								
63	I.K.05	CTH K	Champion Road	CTH P	N Sugarbush Road	1320000								
64	I.N.02	CTH N	Humboldt Road	S New Franken Road	S New Franken Road	1845000								
65	I.N.03	CTH N	Humboldt Road	CTH P	S SugarBush Road	1323000								

Brown County - County Road Safety Plans
Rural Intersection Prioritization
November 7, 2018

Rank	Intersection ID	Route Name	Local Name	Cross Street	Local Name	Cross Product AADT	AADT Cross Product	Alignment Skew >15	Adjacent Curve	Adjacent Trip Generator	Railroad Crossing	Previous Stop (>5 miles)	Total Severe Crashes	Total
66	I.NN.02	CTH NN	CTH NN	State Highway 96	Shirley Road	1827000								
67	I.OO.01	CTH OO	CTH OO	CTH W	E River Road	538650								
68	I.P.01	CTH P	CTH P	CTH R	CTH R	1026000								
69	I.P.03	CTH P	S Sugarbush Road	Finger Road	Finger Road	937500								
70	I.PP.01	CTH PP	CTH PP	CTH Z	Hill Road	1638000								
71	I.JJ.07	CTH JJ	Eaton Road	CTH P	S SugarBush Road	990000								
72	I.NN.01	CTH NN	CTH NN	CTH Z	Park Road	738000								
73	I.P.05	CTH P	N Sugarbush Road	CTH SS	CTH SS	900000								
							46	17	14	8	0	10	18	

Check Marks

ADT Range - If intersection has an ADT cross product in the range most at risk (< ADT < 2000000)
Alignment Skew - If alignment skew is greater than 15
Adjacent Curve - if intersection is in/at a curve
Adjacent Trip Generator - If an Adjacent Trip Generator is Present
Railroad crossing - If intersection is near/at Rail Road Crossing
Previous Stop (>5 miles) If previous stop is more than 5 miles away

	#	%
✓✓✓✓✓✓	0	0%
✓✓✓✓✓	1	1%
✓✓✓✓	1	1%
✓✓✓	13	18%
✓✓	22	30%
✓	21	29%
	15	21%
Total	73	100%

Appendix E – List of Suggested Safety Projects for Prioritized Segments, Curves and Intersections

Brown County - County Road Safety Plans
Rural 2-Lane Segment Projects
November 7, 2018

					Clear Zone Maintenance		Enhance Edgeline		Shoulder Rumble Strip		Shoulder Paving		Safety Edge		Centerline Rumble		Enhanced Edgeline - Noise Sensitivity		
Segment ID	Route	From	To	Length	Recommended	Cost	Recommended	Cost	Recommended	Cost	Recommended	Cost	Recommended	Cost	Recommended	Cost	Recommended	Cost	Total Cost
S.ZZ.03	CTH ZZ	Unknown	Greenleaf Road	5.1	✓	$ 252,696.07		$ -	✓	$ 29,565.44	✓	$ 272,911.76	✓	$ 50,539.21		$ -		$ -	$ 605,712.49
S.D.03	CTH D	CTH CE	High Street	5.0	✓	$ 251,446.68		$ -	✓	$ 29,419.26		$ -		$ -		$ -		$ -	$ 280,865.94
S.JJ.04	CTH JJ	South Huron Road	South Sugar Bush Road	6.9	✓	$ 345,059.05		$ -	✓	$ 40,371.91	✓	$ 372,663.77	✓	$ 69,011.81		$ -		$ -	$ 827,106.54
S.V.05	CTH V	Erie Road	South Sugar Bush Road	6.1	✓	$ 303,592.52		$ -	✓	$ 35,520.32		$ -		$ -	✓	$ 21,858.66		$ -	$ 360,971.50
S.CE.01	CTH CE	Outagamie Road	CTH D	0.5	✓	$ 25,000.00		$ -		$ -		$ -		$ -		$ -	✓	$ 1,000.00	$ 26,000.00
S.U.01	CTH U	Orlando Drive	Freedom Road	2.8	✓	$ 137,708.41		$ -	✓	$ 16,111.88		$ -		$ -		$ -		$ -	$ 153,820.29
S.QQ.01	CTH QQ	Kewaunee Road	Humboldt Road	4.0	✓	$ 201,522.49		$ -	✓	$ 23,578.13		$ -		$ -		$ -		$ -	$ 225,100.63
S.J.06	CTH J	Sunset Beach Road	Brown Road	3.0	✓	$ 148,033.57	✓	$ 5,921.34		$ -		$ -		$ -		$ -		$ -	$ 153,954.91
S.NN.02	CTH NN	Main Street	Depere Road	4.5	✓	$ 223,258.18	✓	$ 8,930.33		$ -		$ -		$ -		$ -		$ -	$ 232,188.51
S.W.07	CTH W	CTH W	CTH PP	2.9	✓	$ 146,344.78	✓	$ 5,853.79		$ -		$ -		$ -		$ -		$ -	$ 152,198.57
S.Y.01	CTH Y	Shady Drive	Old Wisconsin 29	1.4		$ -	✓	$ 2,802.84		$ -		$ -		$ -		$ -		$ -	$ 2,802.84
S.OO.01	CTH OO	Tower Road	Ridgeview Road	1.6	✓	$ 79,904.66	✓	$ 3,196.19		$ -		$ -		$ -		$ -		$ -	$ 83,100.85
S.T.01	CTH T	Cooperstown Road	CTH R	0.6	✓	$ 28,303.16		$ -	✓	$ 3,311.47	✓	$ 30,567.41	✓	$ 5,660.63		$ -		$ -	$ 67,842.67
S.U.05	CTH U	Glendale Avenue	Kunesh Road	2.0	✓	$ 99,149.69	✓	$ 3,965.99		$ -		$ -		$ -		$ -		$ -	$ 103,115.67
S.P.03	CTH P	Humboldt Road	CTH K	7.0	✓	$ 349,861.91		$ -	✓	$ 40,933.84	✓	$ 377,850.86	✓	$ 69,972.38		$ -		$ -	$ 838,619.00
S.X.01	CTH X	CTH NN	State Highway 96	10.1	✓	$ 503,879.15		$ -	✓	$ 58,953.86		$ -		$ -		$ -		$ -	$ 562,833.01
S.KB.03	CTH KB	Wisconsin Avenue	CTH P	1.6	✓	$ 79,398.88		$ -	✓	$ 9,289.67		$ -		$ -		$ -		$ -	$ 88,688.55
S.R.04	CTH R	Stagecoach Road	Shadow Lane	0.5	✓	$ 24,030.96		$ -	✓	$ 2,811.62		$ -		$ -	✓	$ 1,730.23		$ -	$ 28,572.81
S.KB.04	CTH KB	CTH P	Irish Road	1.8		$ -		$ -	✓	$ 10,299.54		$ -		$ -		$ -		$ -	$ 10,299.54
S.P.01	CTH P	North Packer Drive	CTH KB	1.2	✓	$ 59,121.06	✓	$ 2,364.84		$ -		$ -		$ -		$ -		$ -	$ 61,485.90
S.PP.01	CTH PP	North County Line Road	Day Street	5.1	✓	$ 254,054.48		$ -	✓	$ 29,724.37		$ -		$ -		$ -		$ -	$ 283,778.86
S.G.02	CTH G	CTH W	State Highway 96	4.2	✓	$ 211,843.64		$ -	✓	$ 24,785.71		$ -		$ -		$ -		$ -	$ 236,629.34
S.K.01	CTH K	Nicolet Drive	State Highay 57	1.0	✓	$ 49,759.54	✓	$ 1,990.38		$ -		$ -		$ -		$ -		$ -	$ 51,749.92
S.T.06	CTH T	Eaton Road	Humboldt Road	4.9	✓	$ 244,575.91		$ -	✓	$ 28,615.38	✓	$ 264,141.98	✓	$ 48,915.18		$ -		$ -	$ 586,248.45
S.IL.02	CTH IL	Old 57 Road	State Highway 57	0.6	✓	$ 29,172.66	✓	$ 1,166.91		$ -		$ -		$ -		$ -		$ -	$ 30,339.57
S.P.02	CTH P	CTH KB	Finger Road	9.1	✓	$ 454,202.57		$ -	✓	$ 53,141.70	✓	$ 490,538.78	✓	$ 90,840.51		$ -		$ -	$ 1,088,723.56
S.T.04	CTH T	North Avenue	Kewaunee Road	6.4	✓	$ 319,421.47		$ -	✓	$ 37,372.31	✓	$ 344,975.19	✓	$ 63,884.29		$ -		$ -	$ 765,653.26
S.W.01	CTH W	Holland Town Road	Kings Road	1.4		$ -	✓	$ 2,864.96		$ -		$ -		$ -		$ -		$ -	$ 2,864.96
S.W.06	CTH W	Unknown	CTH OO	5.2	✓	$ 259,257.24	✓	$ 10,370.29		$ -		$ -		$ -		$ -		$ -	$ 269,627.53
S.Z.01	CTH Z	Outagamie Road	CTH W	11.2	✓	$ 562,452.54		$ -	✓	$ 65,806.95		$ -		$ -		$ -		$ -	$ 628,259.49
S.IL.01	CTH IL	Unknown	Old 57 Road	0.6	✓	$ 28,141.63	✓	$ 1,125.67		$ -		$ -		$ -		$ -		$ -	$ 29,267.29
S.IR.01	CTH IR	School Lane	Unknown	1.8	✓	$ 87,662.53	✓	$ 3,506.50		$ -		$ -		$ -		$ -		$ -	$ 91,169.03
S.IV.01	CTH IV	South Sugar Bush Road	South Degrand Road	0.9	✓	$ 45,175.53	✓	$ 1,807.02		$ -		$ -		$ -		$ -		$ -	$ 46,982.55
S.K.02	CTH K	State Highway 57	County Line Road	6.4	✓	$ 321,539.15		$ -	✓	$ 37,620.08		$ -		$ -		$ -		$ -	$ 359,159.23
S.SS.01	CTH SS	North Sugarbush Road	County Line Road	1.0		$ -	✓	$ 2,032.51		$ -		$ -		$ -		$ -		$ -	$ 2,032.51
S.T.08	CTH T	Algoma Road	State Highway 57	5.6	✓	$ 280,767.59		$ -	✓	$ 32,849.81		$ -		$ -		$ -		$ -	$ 313,617.39
S.W.05	CTH W	Mill Road	Unknown	0.8	✓	$ 38,456.65		$ -	✓	$ 4,499.43	✓	$ 41,533.18	✓	$ 7,691.33		$ -		$ -	$ 92,180.58
						$ 6,444,794.32		$ 57,899.56		$ 614,582.69		$ 2,195,182.93		$ 406,515.36		$ 23,588.89			$ 9,743,563.76

Notes:

Safety Edge	$10,000-$20,000
Clear Zone	$50,000 - $500,000
Ditch/Embankment	$500,000 - $1,000,000
Enhance Edgeline	$2,000
Shoulder Rumble Strip	$5,850
Shoulder Paving	$54,000
Centerline Rumble	$3,600

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Curve ID	Segment ID	Route Name	Local Name	Upgrade Chevrons		Install Chevrons		Pave Shoulder		Install Rumble Strips		Install Advanced Curve Warning/Speed Advisory Sign		Total Cost
				Recommended	Cost	Recommended	Cost	Recommended	Cost	Recommended	Cost	Recommended	Cost	
C.B.03	S.B.03	CTH B	School Lane		$ -		$ -		$ -	✓	$ 1,972.06	✓	$ 1,440.00	$ 3,412.06
C.B.04	S.B.03	CTH B	School Lane		$ -		$ -		$ -	✓	$ 2,052.84	✓	$ 1,440.00	$ 3,492.84
C.D.03	S.D.03	CTH D	CTH D		$ -	✓	$ 3,960.00		$ -	✓	$ 1,212.95	✓	$ 1,440.00	$ 6,612.95
C.D.04	S.D.03	CTH D	CTH D		$ -		$ -		$ -	✓	$ 1,498.46	✓	$ 1,440.00	$ 2,938.46
C.J.13	S.J.06	CTH J	North Lakeview Drive		$ -	✓	$ 3,960.00		$ -	✓	$ 778.94	✓	$ 1,440.00	$ 6,178.94
C.JJ.06	S.JJ.04	CTH JJ	Eaton Road		$ -	✓	$ 3,960.00	✓	$ 9,331.76	✓	$ 1,010.94	✓	$ 1,440.00	$ 15,742.70
C.JJ.07	S.JJ.04	CTH JJ	Eaton Road		$ -	✓	$ 3,960.00	✓	$ 11,202.81	✓	$ 1,213.64	✓	$ 1,440.00	$ 17,816.45
C.K.01	S.K.01	CTH K	Fischer Road		$ -	✓	$ 3,960.00		$ -	✓	$ 433.22	✓	$ 1,440.00	$ 5,833.22
C.K.02	S.K.02	CTH K	Champion Road	✓	$ 3,960.00		$ -		$ -	✓	$ 894.07	✓	$ 1,440.00	$ 6,294.07
C.K.03	S.K.02	CTH K	Champion Road	✓	$ 3,960.00		$ -		$ -	✓	$ 558.36	✓	$ 1,440.00	$ 5,958.36
C.KB.06	S.KB.03	CTH KB	CTH KB	✓	$ 3,960.00		$ -		$ -	✓	$ 1,251.55	✓	$ 1,440.00	$ 6,651.55
C.KB.07	S.KB.04	CTH KB	CTH KB	✓	$ 3,960.00		$ -		$ -	✓	$ 1,489.04	✓	$ 1,440.00	$ 6,889.04
C.MM.02	S.MM.01	CTH MM	Dutchman Road		$ -	✓	$ 3,960.00		$ -	✓	$ 817.59	✓	$ 1,440.00	$ 6,217.59
C.NN.01	S.NN.02	CTH NN	CTH NN		$ -	✓	$ 3,960.00	✓	$ 8,382.29	✓	$ 908.08	✓	$ 1,440.00	$ 14,690.37
C.P.03	S.P.01	CTH P	CTH P		$ -	✓	$ 3,960.00		$ -	✓	$ 501.96	✓	$ 1,440.00	$ 5,901.96
C.T.04	S.T.04	CTH T	South New Franken Road/South Country Road T		$ -	✓	$ 3,960.00	✓	$ 5,534.99	✓	$ 599.62	✓	$ 1,440.00	$ 11,534.61
C.T.05	S.T.04	CTH T	South New Franken Road/South Country Road T		$ -	✓	$ 3,960.00	✓	$ 5,175.54	✓	$ 560.68	✓	$ 1,440.00	$ 11,136.22
C.T.06	S.T.04	CTH T	South New Franken Road/South Country Road T		$ -	✓	$ 3,960.00	✓	$ 5,695.51	✓	$ 617.01	✓	$ 1,440.00	$ 11,712.53
C.T.07	S.T.04	CTH T	South New Franken Road/South Country Road T		$ -	✓	$ 3,960.00	✓	$ 5,914.57	✓	$ 640.75	✓	$ 1,440.00	$ 11,955.32
C.U.01	S.U.01	CTH U	South County Line Road		$ -	✓	$ 3,960.00		$ -	✓	$ 1,015.79	✓	$ 1,440.00	$ 6,415.79
C.V.10	S.V.05	CTH V	Finger Road		$ -	✓	$ 3,960.00		$ -	✓	$ 877.83	✓	$ 1,440.00	$ 6,277.83
C.V.11	S.V.05	CTH V	Finger Road		$ -	✓	$ 3,960.00		$ -	✓	$ 896.49	✓	$ 1,440.00	$ 6,296.49
C.V.12	S.V.05	CTH V	Finger Road		$ -	✓	$ 3,960.00		$ -	✓	$ 863.86	✓	$ 1,440.00	$ 6,263.86
C.V.13	S.V.05	CTH V	Finger Road		$ -	✓	$ 3,960.00		$ -	✓	$ 876.63	✓	$ 1,440.00	$ 6,276.63
C.W.01	S.W.01	CTH W	CTH W		$ -	✓	$ 3,960.00	✓	$ 19,385.06	✓	$ 2,100.05	✓	$ 1,440.00	$ 26,885.11
C.W.10	S.W.06	CTH W	CTH W		$ -		$ -	✓	$ 13,894.34	✓	$ 1,505.22	✓	$ 1,440.00	$ 16,839.57
C.W.11	S.W.06	CTH W	CTH W		$ -	✓	$ 3,960.00	✓	$ 7,357.49	✓	$ 797.06	✓	$ 1,440.00	$ 13,554.55
C.W.12	S.W.07	CTH W	East River Road		$ -	✓	$ 3,960.00	✓	$ 5,956.95	✓	$ 645.34	✓	$ 1,440.00	$ 12,002.29
C.W.13	S.W.07	CTH W	East River Road		$ -	✓	$ 3,960.00	✓	$ 8,701.82	✓	$ 942.70	✓	$ 1,440.00	$ 15,044.52
C.W.15	S.W.07	CTH W	East River Road		$ -	✓	$ 3,960.00		$ -	✓	$ 705.11	✓	$ 1,440.00	$ 6,105.11
C.X.02	S.X.01	CTH X	CTH X		$ -	✓	$ 3,960.00		$ -	✓	$ 898.98	✓	$ 1,440.00	$ 6,298.98
C.X.03	S.X.01	CTH X	CTH X		$ -	✓	$ 3,960.00		$ -	✓	$ 981.66	✓	$ 1,440.00	$ 6,381.66
C.X.04	S.X.01	CTH X	CTH X		$ -	✓	$ 3,960.00		$ -	✓	$ 1,258.73	✓	$ 1,440.00	$ 6,658.73
C.X.05	S.X.01	CTH X	CTH X		$ -		$ -		$ -	✓	$ 1,088.70	✓	$ 1,440.00	$ 2,528.70
C.X.06	S.X.01	CTH X	CTH X		$ -	✓	$ 3,960.00		$ -	✓	$ 978.72	✓	$ 1,440.00	$ 6,378.72
C.X.07	S.X.01	CTH X	CTH X		$ -	✓	$ 3,960.00		$ -	✓	$ 658.82	✓	$ 1,440.00	$ 6,058.82
C.X.10	S.X.01	CTH X	CTH X		$ -	✓	$ 3,960.00		$ -	✓	$ 883.75	✓	$ 1,440.00	$ 6,283.75
C.X.11	S.X.01	CTH X	CTH X		$ -	✓	$ 3,960.00		$ -	✓	$ 1,030.36	✓	$ 1,440.00	$ 6,430.36
C.Y.01	S.Y.01	CTH Y	CTH Y	✓	$ 3,960.00		$ -	✓	$ 9,480.43	✓	$ 1,027.05	✓	$ 1,440.00	$ 15,907.48
C.Z.01	S.Z.01	CTH Z	CTH Z	✓	$ 3,960.00		$ -		$ -	✓	$ 372.30	✓	$ 1,440.00	$ 5,772.30
C.ZZ.06	S.ZZ.03	CTH ZZ	Eiler Road		$ -	✓	$ 3,960.00	✓	$ 8,285.49	✓	$ 897.60	✓	$ 1,440.00	$ 14,583.09
C.ZZ.07	S.ZZ.03	CTH ZZ	Eiler Road		$ -		$ -	✓	$ 13,710.62	✓	$ 1,485.32	✓	$ 1,440.00	$ 16,635.94
C.ZZ.08	S.ZZ.03	CTH ZZ	Eiler Road		$ -		$ -	✓	$ 18,748.54	✓	$ 2,031.09	✓	$ 1,440.00	$ 22,219.63
C.ZZ.10	S.ZZ.03	CTH ZZ	Eiler Road		$ -		$ -	✓	$ 14,026.53	✓	$ 1,519.54	✓	$ 1,440.00	$ 16,986.07
C.ZZ.11	S.ZZ.03	CTH ZZ	Eiler Road		$ -	✓	$ 3,960.00	✓	$ 3,428.76	✓	$ 371.45	✓	$ 1,440.00	$ 9,200.21
C.ZZ.12	S.ZZ.03	CTH ZZ	Eiler Road		$ -		$ -	✓	$ 7,451.15	✓	$ 807.21	✓	$ 1,440.00	$ 9,698.36
C.ZZ.13	S.ZZ.03	CTH ZZ	Eiler Road		$ -		$ -	✓	$ 12,345.41	✓	$ 1,337.42	✓	$ 1,440.00	$ 15,122.83

Brown County - County Road Safety Plans
Rural Curve Projects
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Curve ID	Segment ID	Route Name	Local Name	Upgrade Chevrons		Install Chevrons		Pave Shoulder		Install Rumble Strips		Install Advanced Curve Warning/Speed Advisory Sign		Total Cost
				Recommended	Cost	Recommended	Cost	Recommended	Cost	Recommended	Cost	Recommended	Cost	
C.ZZ.14	S.ZZ.03	CTH ZZ	Eiler Road		$ -		$ -	✓	$ 12,950.21	✓	$ 1,402.94	✓	$ 1,440.00	$ 15,793.15
C.ZZ.16	S.ZZ.03	CTH ZZ	Eiler Road		$ -		$ -	✓	$ 12,429.06	✓	$ 1,346.48	✓	$ 1,440.00	$ 15,215.54
					$ 23,760.00		$ 122,760.00		$ 219,389.36		$ 50,615.93		$ 70,560.00	$ 487,085.29

Notes:

Upgrade Chevrons	$3,960
Install Chevrons	$3,960
Pave Shoulders	$54,000
Install Rumble Strips	$5,850
Install Advance Curve Warni	$1,440

Brown County - County Road Safety Plans
Rural Intersection Projects
November 7, 2018

Intersection ID	Route Name	Local Name	Cross Street	Local Name	Convert to Roundabout		Additional Safety Strategies for locations that need better visibility[1]		Convert to All Way Stop		Install Streetlights		Upgrade Signing and Markings		Reconstruct to Single "T"		Total Cost
					Recommended	Cost	Recommended	Cost	Recommended	Cost	Recommended	Cost	Recommended	Cost	Recommended	Cost	
I.K.02	CTH K	Champion Road	State Highway 57	Sturgeon Bay Road		$ -	✓	Varies		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.G.07	CTH G	Dickinson Road	CTH V	Line Kiln Road		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.A.03	CTH A	Nicolet Dr / N New Franken Ave	State Highway 57	Sturgeon Bay Road		$ -	✓	Varies		$ -		$ -	✓	$ 10,560.00		$ -	$ 10,560.00
I.P.02	CTH P	CTH P	State Highway 29	Kewaunee Road		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.R.03	CTH R	Main Street	CTH MM	Elm View Road	✓	$ 1,000,000.00		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 1,022,560.00
I.T.03	CTH T	N New Franken Road	State Highway 54	Algoma Road		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.B.03	CTH B	Crest Drive	CTH C	Unknown		$ -	✓	Varies		$ -	✓	$ 12,000.00	✓	$ 7,920.00		$ -	$ 19,920.00
I.Z.01	CTH Z	Hill Road	State Highway 32	Greenleaf Road		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.D.01	CTH D	CTH D	CTH KK	Man Cal Road		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.VV.01	CTH VV	Triangle Drive	State Highway 29	Highway 29		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.KB.06	CTH KB	CTH KB	CTH P	CTH P		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 7,920.00		$ -	$ 19,920.00
I.G.06	CTH G	Dickinson Road	CTH MM	Dutchman Road		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 7,920.00		$ -	$ 19,920.00
I.S.01	CTH S	Freedom Road	U.S. Highway 41 Ramps	U.S. Highway 41 Ramps		$ -	✓	Varies		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.S.02	CTH S	Freedom Road	U.S. Highway 41 Ramps	U.S. Highway 41 Ramps		$ -	✓	Varies		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.NN.04	CTH NN	Stagecoach Road	CTH R	Main Street		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 7,920.00		$ -	$ 19,920.00
I.W.01	CTH W	CTH W	CTH Z	CTH Z		$ -		$ -		$ -		$ -	✓	$ 10,560.00		$ -	$ 10,560.00
I.EE.02	CTH EE	Orlando Drive	CTH GE	S Pine Tree Road		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.P.04	CTH P	N Sugarbush Road	State Highway 54	Algoma Road		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.D.02	CTH D	Unknown	CTH Z	Hill Road		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.G.13	CTH G	Fernando Drive	CTH GE	S Pine Tree Road		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.EE.01	CTH EE	Orlando Drive	CTH U	S County Line Road		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.JJ.05	CTH JJ	Eaton Road	CTH QQ	S Vandenberg Road		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
I.IL.01	CTH IL	Mill Road	State Highway 57	State Highway 57		$ -		$ -		$ -	✓	$ 12,000.00	✓	$ 10,560.00		$ -	$ 22,560.00
						$ 1,000,000.00		$ -		$ -		$ 252,000.00		$ 232,320.00		$ -	$ 1,484,320.00

Note	
Convert to Roundabout	$1,000,000
Additional Safety Strategies	Varies
Convert to All Way Stop	$1,000
Streetlight (assume 2 per intersection)	$6000 per light
Upgrade Signing and Markings	$2,640
Reconstruct to Single T Intersection	$150,000

[1] See additional Safety Strategies in Chapter 2-1-8 of the WisDOT Traffic Engineering Operations & Safety Manual